

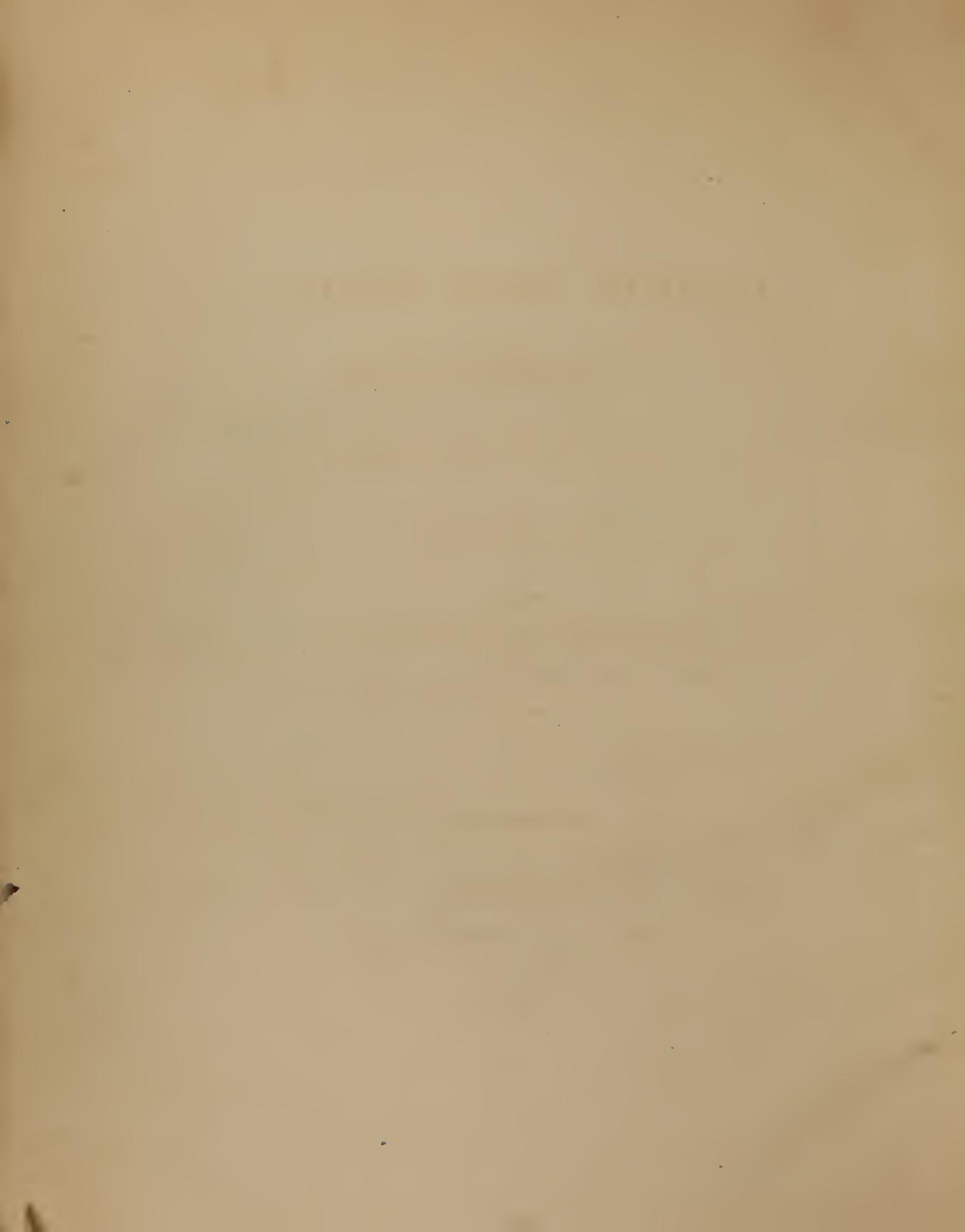
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A

FLORA OF NORTH AMERICA.

ILLUSTRATED BY

COLOURED FIGURES,

DRAWN FROM NATURE.

BY WILLIAM P. C. BARTON, M. D.

U. S. N.

PROFESSOR OF BOTANY IN THE UNIVERSITY OF PENNSYLVANIA.

VOLUME I.

25253

PHILADELPHIA:

M. CAREY & SONS—CHESNUT STREET.

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1821.

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1821

EASTERN DISTRICT OF PENNSYLVANIA, TO WIT :

L. S.

BE IT REMEMBERED, That on the fifth day of July, in the forty-sixth year of the Independence of the United States of America, A. D. 1821, WILLIAM P. C. BARTON, of the said District, hath deposited in this office the title of a Book, the right whereof he claims as Author in the words following, to wit: "A Flora of North America. Illustrated by coloured figures, drawn from Nature. By William P. C. Barton, M. D. U. S. N. Professor of Botany in the University of Pennsylvania. Volume 1." In conformity to the Act of the Congress of the United States, intituled, "An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the Authors and Proprietors of such copies during the times therein mentioned."—And also to the Act, entitled, "An Act supplementary to an Act, entitled 'An Act for the encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the Authors and Proprietors of such copies during the times therein mentioned,' and extending the benefits thereof to the Arts of designing, engraving, and etching historical and other Prints."

D. CALDWELL, Clerk of the Eastern District of Pennsylvania.

TO

JAMES MONROE,

PRESIDENT

OF THE

UNITED STATES:

THESE PAGES,

THE COMMENCEMENT OF AN EXTENSIVE NATIONAL PRODUCTION,

ARE MOST RESPECTFULLY DEDICATED

BY THE AUTHOR.

PREFACE.

NORTH American botany has hitherto owed its greatest accessions to the learning and enterprize of foreign botanists, who have devoted themselves to this alluring subject, under the liberal patronage of transatlantic governments, either directly bestowed, or extended indirectly through the exploring zeal of learned societies and scientific associations. France, Germany, Prussia and England, have all sent into this country, men of learning and science, with the express intention of investigating our plants. They have been supported in their travels by regal liberality; and sustained in the importance of their mission, by the countenance of scientific favour. To their efforts we are unquestionably greatly indebted, for much of the present knowledge of the botany of our country; and to them unhappily we have looked too implicitly, for that improvement in its character and interests, to which their early efforts have served to give them a kind of prescriptive right.

That spirit of independence, however, which forms the basis of character in a true American, has discovered its determination to eman-

cipate itself from scientific subjugation to foreign countries. It has striven, and continues to strive, to form for itself a scientific and literary character, as it has long since established one for national glory. The foundation of a national temple of learning and science, is already laid by our venerated fathers—the literary genius of our country is no longer questioned. In its native strength it is ample and ready to be called into requisition, while a greater degree of liberality in education would render it operative and efficient. The materials are furnished by the physical and moral aspect of our interesting country. The genial influence alone of national encouragement and protection is wanting, to complete in the approaching half century, a superstructure at once durable and gigantic. The commercial depression which has pervaded our Union for some time past, and of which there seems little prospect of removal, will be attended with at least the benefit of promoting science and literature. This it will effect by inviting a more extensive cultivation of the liberal professions—and by the necessity which will be perceived to improve our knowledge and taste of the different branches of physical science, with the ulterior object of enhancing our agricultural interests, or augmenting the force and usefulness of the manufacturing policy. Without an avowed, or perhaps actual predilection, for either of these great interests, the declaration may be fairly ventured, that conflicting as they may seem to be relatively to intrinsic objects, they will produce the union suggested, in favour of science and the liberal arts.

A laudable spirit of encouragement to a cultivation of our own resources has been already evinced, by the efforts of the present administration, in attaching scientific departments to military exploring embassies. By thus affording facilities for learned men to penetrate the recesses of our territory, a correct knowledge of the country will be acquired. Already the expeditions have resulted in the accumulation of geographical and natural historical documents and information, of high value to our national interests; thus giving evidence at once of their usefulness and the liberal views under which they originated. Fostered by this spirit of encouragement, the native genius of our country can expand her wings, and, soaring over its extensive and fruitful regions, return loaded with literary and scientific treasure. Hence Americans will dwell with pride on the rising literary fame of their extensive and happy country. They can indulge the fond anticipation, that its scientific greatness may become the brightest charge on the escutcheon of its heraldic emblazonment.

Deeply impressed with these sentiments, the author has naturally entertained the idea, that, though the efforts of an individual can accomplish but very little, towards so great an object as promoting the advancement of national science: still something may be effected, even by individual labour, in a department too much neglected by native Americans, too much contemned by narrow-minded, self-interested teachers, in distinguished medical schools;

and above all, too readily surrendered to foreigners. The interesting aspect of novelty and importance which our extensive domains present, allures them to come among us to execute the task of examining and describing our natural productions, for which their zeal, their taste, and their learning so eminently qualify them. Can any American examine the splendid and useful work of the younger Michaux, on our forest trees, without a pang of mortifying regret, that the author of such a production was not an American?

That cause for repetition of such mortification may not be found in seeing the Flora of North America executed on the same plan by any foreigner, the author has embarked in the enterprize, as one which naturally invited his attention, because one in which he could most usefully engage. The Flora Danica has been taken as a model, having been found eminently useful by the authority of its figures.

This Flora is designed to elucidate, by the authority of coloured figures, the interesting botany of North America. On the successful cultivation and improvement of this science among us, depend in a degree scarcely realized to its full extent, the agricultural, the manufacturing, and the medical interests of our rich, abundant, and independant country. It has been commenced under unpromising circumstances, without any other prospect of success than that which the author's zeal and the laudable enterprize of his publishers, en-

deavoured to see in perspective; and has been undertaken chiefly from an ambition of giving to the country a production on a science connected with its highest interests, which may claim to be considered a national work.

With these views the first volume is now offered to the public, and is tendered as a small contribution to the general stock of natural history; as well as an earnest of what may be done in the future prosecution of the enterprize, by a patronage commensurate with the importance of the object. This it is confidently believed will not be withheld, provided the present volume affords a sufficient degree of ability to ensure confidence.

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THE plan to be pursued in the following sheets, is, to commence the history of each figure by the botanical name of the plant. In the second line the English or vulgar name is given. In the third, the place of the plant in the class and order of the system of Linnæus, and in the natural family of Jussieu. The generic character next follows; and, when not particularly quoted from other works, it is taken from the *Genera Plantarum* of Linnæus. The specific character, when, in the opinion of the author an unexceptionable one is to be found in any of the modern botanical works, is quoted from them; but most frequently given by himself and marked with the initial B. The synonymy succeeds—and under this head, in reference to the figure, much useful information is added. The text commences with the technical descriptive account of the plant, to which the *habitat*, soil, and time of flowering are superadded. In the *general* history which follows, the origin of the generic name is given, when known, as well as the derivations of the common or vulgar names; and finally, in all instances in which the economical uses of plants are interesting, they will be noticed, and such particularized as medicinal as are possessed of sanative properties.

In the description of the colours of the flowers, leaves, fruit, &c. the author has assumed the new and precise nomenclature of Werner, as exemplified in Mr. Symes's edition. No further importance is intended to be conveyed by this precision in designating the various tints of nature, than that which truth and perspicuity must always afford. To this it may be remarked, that few botanists describe colours accurately, owing to the general confusion and erroneous ideas which prevail in the minds of most persons, relative to the names of different tints. Few are particularly attentive in scrutinizing the various shades of the standard or characteristic colours; and fewer still take the pains of studying the inclination of one shade towards its kindred tint, or the falling of the remote tints of the standard colour into its neighbouring hues. Hence, in minute descriptive botany, perpetual confusion occurs between blues and purples, of different intensity, yellow and orange, reds and red purples, browns and greys, and greys and black. Some idea may be formed of the difficulty on this subject by knowing, that Werner and Symes's enumeration of the most common colours or tints that appear in nature, amount to one hundred and eight.

With a view to illustrate as far as practicable without the tints, this nomenclature, he now subjoins the animal, vegetable and mineral substances which Werner and Symes adduced for this purpose—at the end of the second volume, the tints themselves will be added.

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WHITES.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|------------------------|------------------------------|--|----------|
| 1 | Snow White. | | Exemplified in Snow Drop. (<i>Galanthus nivalis</i> .) | |
| 2 | Reddish White. | | Back of the Christmas Rose. | |
| 3 | Purplish White. | | White Geranium, or Stork's Bill. | |
| 4 | Yellowish White. | | Hawthorn Blossom. | |
| 5 | Orange-coloured White. | | Large wild Convolvulus. | |
| 6 | Greenish White. | | Polyanthus narcissus. | |
| 7 | Skimmed-milk White. | White of the Human Eyeballs. | Back of the Petals of Blue Hepatica. | |
| 8 | Greyish White. | | White Hamburgh Grapes. | |

GREYS.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-----------------|---|-----------------------------|------------|
| 9 | Ash Grey. | | Fresh Wood Ashes. | |
| 10 | Smoke Grey. | Breast of the Robin, round the red. | | |
| 11 | French Grey. | Breast of Pied Wag-tail. | | Flint. |
| 12 | Yellowish Grey. | | Stems of the Barberry Bush. | |
| 13 | Bluish Grey. | Back and tail coverts of the Wood Pigeon. | | Limestone. |
| 14 | Greenish Grey. | Quill feathers of the Robin. | Bark of Ash Tree. | |
| 15 | Blackish Grey. | | Old Stems of Hawthorn. | Flint. |

BLACKS.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-----------------------------|---|---|-------------|
| 16 | Greyish Black. | Water Ousel, Breast and upper part of Back of Water Hen. | | |
| 17 | Bluish Black | Largest Black Slug. | Crowberry. | |
| 18 | Greenish Black. | Breast of Lapwing. | | Hornblende. |
| 19 | Pitch or Brownish Black. | Guillemot, Wing Coverts of Black Cock. | | |
| 20 | Reddish Black. | Spots on large wings of Tyger Moth. | Berry of Fuchia Coccinea. | |
| 21 | Raven Black. | Raven. | Berry of Deadly Nightshade. | |
| 22 | Velvet Black. | | Black of Red and Black West India Peas. | |

BLUES.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-------------------|---|--|----------------------------------|
| 23 | Indigo Blue. | | Stamina of Single Pur- ple Anemone. | Blue Copper Ore. |
| 24 | Prussian Blue. | Beauty spot on Wing of Mallard Drake. | Stamina of Bluish Pur- ple Anemone. | |
| 25 | China Blue. | | Back Parts of Gen- tian Flower. | Blue Copper Ore from Chessy. |
| 26 | Azure Blue. | | Grape Hyacinth, Gentian. | |
| 27 | Ultramarine Blue. | | Borage. | Azure Stone, or Lapis Lazuli. |
| 28 | Flax-flower Blue | | Flax-flower. | |
| 29 | Berlin Blue. | Wing Feathers of Jay. | | Blue Sapphire. |
| 30 | Verditter Blue. | | | Lenticular Ore. |
| 31 | Greenish Blue. | | Great Fennel Flower. | Turquois Fluor Spar. |
| 32 | Greyish Blue. | Back of Blue Tit- mouse. | Small Fennel Flower | Iron Earth. |

PURPLES.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-----------------------|---------|---|------------------|
| 33 | Bluish Lilac Purple. | | Blue Lilac. | Lepidolite. |
| 34 | Bluish Purple. | | Parts of White and Purple Crocus. | |
| 35 | Violet Purple. | | Purple Aster. | Amethyst. |
| 36 | Pansy Purple. | | Sweet-scented Violet. | Derbyshire Spar. |
| 37 | Campanula Purple. | | Canterbury Bell, Campanula, Percifolia. | Fluor Spar. |
| 38 | Imperial Purple. | | Deep parts of Flower of Saffron Crocus. | |
| 39 | Auricula Purple. | | Largest Purple Auricula. | |
| 40 | Plum Purple. | | Plum. | |
| 41 | Red Lilac Purple. | | Red Lilac, Pale Purple Prim- rose. | |
| 42 | Lavender Purple. | | Dried Lavender Flowers. | Jasper. |
| 43 | Pale Blackish Purple. | | | Porcelain Jasper |

GREENS.

| No. | NAMES, | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|------------------|--|---|----------------------|
| 44 | Celandine Green. | Phalæna Margaritaria. | Back of Tussilago Leaves. | |
| 45 | Mountain Green. | Phalæna Viridaria. | Thick-leaved Cudweed, Silver-leaved Almond. | Actynolite, Beryl. |
| 46 | Leek Green. | | Sea Kale, Leaves of Leeks in Winter. | |
| 47 | Blackish Green. | | Dark Streaks on Leaves of Cayenne Pepper. | Serpentine. |
| 48 | Verdigris Green. | Tail of small long-tailed Green Parrot. | | Copper Green. |
| 49 | Bluish Green. | Egg of Thrush. | Under disk of Wild Rose Leaves. | |
| 50 | Apple Green. | Under side of Wings of Green Broom Moth. | | Crysoprase. |
| 51 | Emerald Green. | Beauty spot on Wing of Teal Drake. | | Emerald. |
| 52 | Grass Green. | | General appearance of Grass Fields, Sweet Sugar Pear. | Uran, Mica. |
| 53 | Duck Green. | Neck of Mallard. | Upper disk of Yew Leaves. | Ceylanite. |
| 54 | Sap Green. | Under Side of lower Wings of Orange-tip Butterfly. | Upper disk of Leaves of Woody Nightshade. | |
| 55 | Pistachio Green. | Neck of Eider Drake. | Ripe Pound Pear, Hypnum like Saxifrage. | Crysolite. |
| 56 | Asparagus Green. | Brimstone Butterfly. | Variogated Horse-Shoe Geranium. | |
| 57 | Olive Green. | | Foliage of Lignum Vitæ. | Epidote, Oliven Ore. |
| 58 | Oil Green. | Animal and Shell of Common Water Snail. | Nonpareil Apple of the Wall. | Beryl. |
| 59 | Siskin Green. | Siskin. | Ripe Coalmar Pear, Irish Pitcher Apple. | Uran, Mica. |

YELLOWS.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-------------------|--|------------------------------------|------------------------|
| 60 | Sulphur Yellow. | Yellow parts of large Dragon-Fly. | Various coloured Snap Dragon. | Sulphur. |
| 61 | Primrose Yellow. | Pale Canary Bird. | Wild Primrose. | Pale coloured Sulphur. |
| 62 | Wax Yellow. | Larva of large Water Beetle. | Greenish Parts of Nonpareil Apple. | Semi-Opal. |
| 63 | Lemon Yellow. | Large Wasp or Hornet. | Shrubby Goldylocks. | Yellow Orpiment. |
| 64 | Gamboge Yellow. | Wings of Goldfinch, Canary Bird. | Yellow Jasmine. | High coloured Sulphur. |
| 65 | King's Yellow. | Head of Golden Pheasant. | Yellow Tulip, Cinque foil. | |
| 66 | Saffron Yellow. | Tail Coverts of Golden Pheasant. | Anthers of Saffron Crocus. | |
| 67 | Gallstone Yellow. | Gallstone. | Marigold Apple. | |
| 68 | Honey Yellow. | Lower parts of Neck of Bird of Paradise. | | Fluor Spar. |
| 69 | Straw Yellow. | | Oat Straw. | Schorlite, Calomine. |
| 70 | Wine Yellow. | Body of Silk Moth. | White Currants. | Saxon Topaz. |
| 71 | Sienna Yellow. | Vent parts of tail of Bird of Paradise. | Stamina of Honey-suckle. | Pale Brazilian Topaz. |
| 72 | Ochre Yellow. | Vent Coverts of Red Start. | | |
| 73 | Cream Yellow. | Breast of Teal Drake. | | |

ORANGE.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|----------------------|--|---|-------------------------|
| 74 | Dutch Orange. | Crest of Golden-crested Wren. | Common Marigold, Seedpod of Spindle tree. | Streak of Red Orpiment. |
| 75 | Buff Orange. | Streak from the Eye of the King Fisher. | Stamina of the large White Cistus. | Natrolite. |
| 76 | Orpiment Orange. | The Neck Ruff of the Golden Pheasant, Belly of the Warty Newt. | Indian Cress. | |
| 77 | Brownish Orange. | Eyes of the largest Flesh-Fly. | Style of the Orange Lily. | Dark Brazilian Topaz. |
| 78 | Reddish Orange. | Lower wings of Tyger-moth. | Hemimeris, Buff Hebiscus. | |
| 79 | Deep Reddish Orange. | Gold Fish, lustre abstracted. | Scarlet Leadington Apple. | |

RED.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|----------------------|---|---|------------------------|
| 80 | Tile Red. | Breast of the Cock Goldfinch. | Shrubby Pimpernel. | |
| 81 | Hyacinth Red. | Red Spots of the Lygæus Apterus Fly. | Red on the Golden Rennette Apple. | Hyacinth. |
| 82 | Scarlet Red. | Scarlet Ibis or Curlew, Mark on Head of Red Grouse. | Large Red Oriental Poppy, Red Parts of red and black Indian Peas. | Light Red Cinnaber. |
| 83 | Vermillion Red. | Red Coral. | Love Apple. | Cinnaber. |
| 84 | Aurora Red. | | Red on the Naked Apple. | Red Orpiment. |
| 85 | Arterial Blood Red. | Head of the Cock Goldfinch. | Corn Poppy, Cherry. | |
| 86 | Flesh Red. | Human Skin. | Larkspur. | Heavy Spar, Limestone. |
| 87 | Rose Red. | | Common Garden Rose. | Figure Stone. |
| 88 | Peach Blossom Red. | | Peach Blossom. | Red Cobalt Ore. |
| 89 | Carmine Red. | | Raspberry, Cock's Comb, Carnation Pink. | Oriental Ruby. |
| 90 | Lake Red. | | Red Tulip, Official Rose. | Spinel. |
| 91 | Crimson Red. | Outside of Quills of Terrico. | Dark Crimson Official Garden Rose. | Precious Garnet. |
| 92 | Cochineal Red. | | Under Disk of decayed Leaves of None-so-pretty. | Dark Cinnaber. |
| 93 | Veinous Blood Red. | Veinous Blood. | Musk Flower, or dark Purple Scabious. | Pyrope. |
| 94 | Brownish Purple Red. | | Flower of deadly Nightshade. | Red Antimony Ore. |
| 95 | Chocolate Red. | Breast of Bird of Paradise. | Brown Disk of common Marigold. | |
| 96 | Brownish Red. | Mark on Throat of Red-throated Diver. | | Iron Flint. |

BROWNS.

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-----------------------------|---|-----------------------------------|-------------------------------|
| 97 | Deep Orange-coloured Brown. | Head of Pochard, Wing Coverts of Sheldrake. | Female spike of Catstail Reed. | |
| 98 | Deep Reddish Brown. | Breast of Pochard, and Neck of Teal Drake. | Dead Leaves of Green Panic Grass. | Brown Blende. |
| 92 | Umber Brown. | Moor Buzzard. | Disk of Rudbeckia. | |
| 100 | Chesnut Brown. | Neck and Breast of Red Grouse. | Chesnuts. | Egyptian Jasper. |
| 101 | Yellowish Brown. | Light Brown Spots on Guinea-Pig, Breast of Hoopoe. | | Iron Flint and Common Jasper. |
| 102 | Wood Brown. | Common Weasel, Light parts of Feathers on the Back of the Snipe. | Hazel Nuts. | Mountain Wood. |
| 103 | Liver Brown. | Middle Parts of Feathers of Hen Pheasant, and Wing Coverts of Grosbeak. | | Semi Opal. |
| 104 | Hair Brown. | Head of Pintailed Duck. | | Wood Tin. |
| 105 | Broccoli Brown. | Head of Black-headed Gull. | | Zircon. |
| 106 | Clove Brown. | Head and Neck of Male Kestral. | Stems of Black Currant Bush. | Axinite, Rock Crystal. |
| 107 | Blackish Brown. | Stormy Petrel, Wing Coverts of Black Cock, Forehead of Fommart. | | Mineral Pitch. |

(Omitted in the list of Greys.)

| No. | NAMES. | ANIMAL. | VEGETABLE. | MINERAL. |
|-----|-------------|--|------------------------------------|----------|
| 108 | Pearl Grey. | Backs of Black-headed and Kittiwake Gulls. | Back of Petals of Purple Hepatica. | |

DIRECTIONS TO THE BINDER.



The title page given to the first number to be cancelled, and the one now given to be substituted for it.

The advertisement accompanying No. 1. to be cancelled.

The advertisement to No. 7, (the one dated Feb. 8, 1821,) to follow immediately after the "Errata" on this page.

The plates to face the heads of the Chapters.



ERRATA.

Page 112, line 6 from the bottom, for "attenuata" read *dilatata*.

Page 115, in the explanation of the plate of *Uvularia perfoliata*, after "fig. 5" insert, *fig. 6, an outline of a leaf from a plant in fruit.*

ADVERTISEMENT.

THE author begs leave to call the attention of the subscribers of the Flora, to the new style of engraving adopted in the work, with a view to enhance its value. It consists of that kind of graphic execution in which so high a degree of perfection has been attained in France, and which has been so justly admired in the plates of Michaux's splendid work on the Forest Trees of North America.

In the present work, the Table representing the Cranberry, Table XX., and the Table exhibiting a picture of the famous Scull-Cap, all in Nos. VI. and VII., afford specimens of this kind of engraving, executed by the masterly graver of Mr. Cornelius Tiebout, of this city, an artist who has long been eminent for his line and dotted engraving. These plates are printed *in colour*, and are afterwards coloured by hand. It is confidently believed by the author, that they will be found the most successful attempts at imitation by *sound* engraving, of the French style, yet made in this country. It may not be here improper to state, and the author does it without any fear of contradiction from those acquainted with the subject, that it is the next thing to impossi-

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ble to present true imitations of plants, by mere coloured copper-plates—that is to say, by impressions from engraved copper, in printing which, one, two, three, or even more colours, are put on the copper. Nothing comes near to nature, and consequently nothing is faithful, but colours laid on the coloured impressions, by the pencil, under the direction of persons well acquainted with the real hues of plants. To verify this assertion, it may be mentioned, that the superbly executed plates of Michaux's forest trees, are all *coloured by hand*, a fact not generally known, but one of which any person may satisfy himself by rapidly sponging with clean water any one of those plates. All the colouring can be washed away, and the engraving will be found printed in green, brown, red, and yellow—sometimes in only one, occasionally in two, or all of these colours. And it is to imitate this accurate and expressive style that the author has made the attempts alluded to. For example, the plate of the cranberry and that of the scull-cap in Nos. VI. and VII. of this Flora, are highly finished specimens of this expressive species of engraving; but still more highly wrought examples will be found in No. VIII., which will be published on the first of March. In that No. the plates of cleome dodecandra and solanum carolinense, will not be found to suffer from rigid comparison with the exquisite plates of Michaux's Forest Trees—and they are executed, both by dotted engraving and coloured by hand, precisely in the same manner as the plates of that magnificent work. As far as the engraving is concerned, the author feels himself capable of giving an impartial opinion;

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and it is but justice to the enterprize and talents of Mr. Tiebout to state thus much. Whether the colouring of the plates alluded to in No. VIII. will be found equal to Michaux's is not for the author, but the public, to decide. Thus much he may with propriety state: that his work on Vegetable Materia Medica contained the first coloured engravings of plants which had issued from an American press—they were begun without any information as to the *tact* employed in this kind of work in England, where it has attained so high a degree of perfection. Owing to the impossibility of obtaining information as to the manner of colouring abroad, he has been obliged to make repeated *experiments*, and has thus gradually brought it to the style exhibited in the present work. He has now the satisfaction of presenting a close imitation of the *French method*. Both of the different kinds of engraving, (the finished dotted and the line,) will be used in this work in future; each having its peculiar beauty, advantage, and expression, for presenting pictured imitations of plants of diverse characters and physiognomy.

In justice to the publishers who have embarked in this, the most extensive original work ever undertaken in this country, it should be mentioned: that the present plan enhances the expense of the work, and, in some measure, lessens the author's profits, while at the same time, the price is not augmented. And as more is given to the subscribers than promised, the Publishers confidently look for an enlarged patronage by an increasing subscription.

ADVERTISEMENT.

On their part and on his own, the author ventures a pledge, that neither pains, expense, nor care shall be wanting, to render this publication worthy the title of a NATIONAL WORK, exhibiting, in all its materials, specimens of American manufacture; and its execution being wholly accomplished by American artists.

*North-east corner of Tenth and Chesnut streets,
Philadelphia, February 8, 1821.*





Fig. 1

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Drawn from Nature by W. L. C. Boott.

Plate 3.

LYSIMACHIA RUFESCENS.

TABLE I.

LYSIMACHIA RACEMOSA.

CLUSTER-FLOWERED LOOSESTRIFE. BULB-BEARING LOOSE-
STRIFE.

Pentandria Monogynia, Linn.

Lysimachia, Juss.

GENERIC CHARACTER.

Calix 5-cleft. *Corolla* rotate, 5-cleft. *Stigma* 1. *Capsule* 1-celled, globular, mucronate, 5 or 10 valved, few or many-seeded.—*Nutt.*

SPECIFIC CHARACTER.

L. RACEMOSA; very smooth; leaves oval-lanceolate, opposite, dotted; raceme terminal, long, loose; segments of the corolla oblong-oval.—*Mich.*

SYNONYMS.

LYSIMACHIA racemosa, Lamarck. Ency. iii. p. 546.

L. stricta, Ait. i. p. 199, and Willd. i. p. 818.

L. bulbifera, Curt. Bot. Mag. 104.

L. vulgaris, Walt. Fl. Car.?

L. Floridana lutea minor, &c. Pluk. Amalth. 139. t. 428. f. 4.

Lysimachia racemosa.

PLANT from eighteen inches to two and a half feet high; very smooth. Root perennial, fibrous. Leaves yellowish-green, lanceolate, and oval-lanceolate, very entire, opposite, finely dotted with black specks. Flowers numerous, from twenty to thirty-five, in a long, pyramidal, loose, terminal raceme; sometimes verticillated, often alternate. Corolla bright yellow, rotate. Petals five, very rarely six, oblong-lanceolate, somewhat twisted, forming at their juncture with the calix a white central spot, circumscribed exteriorly to the origin of the stamens, with red dots. Pedicels one-flowered, slender, about a quarter or half an inch long. Flower buds yellow, tipped with carmine-red. Calix, five linear-lanceolate, acute segments. Bracts lanceolate. Lower flowers appearing first, and the raceme becoming elongated during the progress of inflorescence. Often viviparous, bearing narrow, sometimes ovate, red bulbs in the axills of the leaves, about a quarter of an inch, and from that to near an inch in length. Inhabits the margins of ditches and meadow-drains; low, wet, grassy meadows, and, generally places contiguous to water, from Canada to Virginia. Flowers in July and August.

The plant here figured is one of the prettiest of the American species of the genus to which it belongs. It is a showy ornament of the sites enumerated as its resort, and differs so much according to the congeniality or unfavourableness of the soil in which it grows, that it appears to be well worth cultivation. Delighting in moisture, being quite hardy, and bearing transplantation well, there would ap-

pear nothing else requisite in its culture than a free supply of water.

The appellation *Lysimachia*, is a very ancient generic term, and we are informed by Pliny and Ambrosinus, that it was imposed in honour of Lysimachus, a favourite general of Alexander the Great, who afterwards became king of Thrace. The English name, Loose-strife, given in common to all the species of the genus, is supposed to be derived from two Greek words, *λυσις μαχης*, a *dissolution of strife*, or a *peace-maker*. The caprice, however, which affixed this name and that of Lysimachus together, is enigmatical. And unless its origin be looked for in an ironical intention, the appellation seems unaccountable; since history informs us, that this king was cruel, ferocious, and strifeful.

The most striking circumstance in the history of the present species, is its occasional anomalous mode of re-production, by means of bulbs. Hence Curtis called it *L. bulbifera*. Specimens are not uncommon, which present so many of these axillary seeds, that the aspect of the plant is, to those unacquainted with the fact, materially changed. In such instances the flowers are abortive, no seed nor capsules being matured. The plant varies also in being simple, or very much branched, according to circumstances. Grounds generally wet, or occasionally irrigated or inundated, and the borders of rivers, rivulets, bogs, and watery thickets, will seldom be

searched for this species unsuccessfully. Pursh limits its range to Virginia; and Mr. Elliott does not describe it as a native of the Carolinas or Georgia. Michaux, however, is incorrect in restricting its limits to New York, as it is found abundantly in the northernmost states. It is common in the neighbourhood of this city. Mr. Nuttall suggests the probability, that this is a mere variety of the *L. angustifolia*. It is, however, quite distinct. That plant has from four to six flowers, supported on whorled pedicels of an inch or an inch and a half in length, arising from as many whorls of lanceolate leaves, four in number, towards the top of the plant. The calix in the *L. angustifolia* is very different, being three times the size of that of the plant under consideration. The leaves also, are sufficiently distinct; and, together with the mode of inflorescence, leave the point indubitable.

TABLE I.

Fig. 1. A flowering specimen.

2. A back view of a flower, separated.
3. A front view of the same.
4. The calix and pistil.
5. Annulet with stamens. (All the size of nature.)



Drawn from Nature by W. P. C. Barton

F. Kearney del.

SCUTELLARIA HYSOIFOLIA.

TABLE II.

SCUTELLARIA HYSSOPIFOLIA.

HYSSOP-LEAVED SCULL-CAP.

Didynamia Gymnospermia, Linn.

Labiata, Juss.

GENERIC CHARACTER.

Margin of the calix entire, after flowering closed with a galeate lid. Tube of the corolla elongated.

SPECIFIC CHARACTER.

Thickly pubescent; stem erect, four-sided, branched; leaves sessile, lanceolate-linear, obtuse, very entire, attenuated at base, those near the root petiolated; margin slightly scabrous; racemes elongated, leafy. B.

SYNONYMS.

- SCUTELLARIA* *hyssopifolia*, Willd. Sp. Pl. iii. p. 174, and Muhl. Cat.
S. integrifolia, var. β . *hyssopifolia*, Pursh, No. 7, and Barton's Comp. Fl. Ph. No. 4.
S. integrifolia, sub var. 1. Mich. Fl. Boreali-Am. ii. p. 12.
S. integrifolia, Nutt. Gen. Am. Pl. ii. p. 37. Ait. No. 10. and Eaton's Man. 433.
S. foliis integerrimis, Gron. ed. 1. 67, excluding references to Pluk. and Ray.
S. virginianum, *hyssopi angusti foliis*, &c. Pluk. 338, t. 441. f. 6.

WHOLE plant covered with a dense, short down, obscuring the vividness of the green. Root perennial, branched, fibrous. Stem from eight inches to two feet high, four-sided, often simple, but mostly very much branched above; branches opposite, erect, each terminating in a loose raceme, garnished with small leaves. Leaves lanceolate-oblong, obtuse, attenuated at base; those at the root ovate, with an obscure tooth or two, and distinctly petiolated. The first and second, and occasionally the third pairs of the stem, very entire, sub-petiolated, the petiole being somewhat winged by continuation of the margin of the leaf. The upper stem-leaves closely sessile. The branch-leaves linear and sessile, all obtuse, entire, opposite, situated in pairs on the alternate sides of the quadrangular stem, and covered with a multitude of dots beneath. Corolla densely invested with down, campanula-purple, having a white, confluent, divided spot on the lower lip of the palate. Stamens flax-blue, with purple, globose anthers; pistil blue, with a round stigma, all arcuate, retaining the arch of the upper lip and tube of the corolla. Flowers numerous, borne in long, loose, leafy, terminal racemes. Calix covered with fine down, gaping to receive the tube of the corolla, and crowned with a concave appendage, as is common to the genus; small during inflorescence, but subsequently enlarging until the fruit become mature. Seeds small, black, irregularly roundish, and exteriorly corrugated. Inhabits wet, low grounds, meadows and bogs, from New York to Carolina. Flowers in July and August.

The plant just described is the finest of the American species of the genus. No one who has seen a single individual of this tribe in

fruit, could readily forget the singular form of the calix, or rather the capsule, which has given rise to the generic term *Scutellaria*. The *scutella* of the Romans was a small dish or saucer, to the shape of which the capsules of these plants have been supposed to bear a close resemblance; and hence, or to the term *scutulum*, or little shield, to which the coronal appendage has been likened, the genus owes its name. It was called *Cassida* by Tournefort, from a comparison of the calix of the fruit to a helmet. The English name *Scull-cap*, imposed on the whole genus, is referable to a similar resemblance to a kind of cap which fits close to the head (or scull) to which a flat, concave crown is superincumbent.

The American plants of this genus, are far from being well defined or described. Several species are confounded with each other, and though designated in the books, are imperfectly discriminated. The present one has been passed by since the time of Michaux, as a mere variety of *S. integrifolia*, a plant itself not well known, and often confounded with one or two others. Yet it was discerned by Linnæus; and the plant here figured, is the genuine *S. hyssopifolia* of the *Species Plantarum*. It is designated by Gronovius as having very entire leaves, and he seems to have known it well, though his references to Plukenet and Ray are incorrectly applied to this species. It is the *S. hyssopifolia* of Willdenow, and of Muhlenburg's catalogue and herbarium; and as its name is very appropriate and expressive, from the resemblance of the leaves to those of hyssop, there does not appear any good reason for assigning to it the specific

appellation, so unwarrantably given to *S. integrifolia*, the leaves of which are toothed and serrated. The present plant will be found in rich grassy and damp meadows; on the borders of wet thickets; the margins of shaded rivulets; rarely on the edges of exposed water courses, and shuns salt water ditches. These are the situations in which it has been found by me, through New York, New Jersey, Pennsylvania, Maryland and Virginia. Yet Pursh, erroneously considering this, as Michaux suggested it to be, a variety of *S. integrifolia*, has assigned it to similar situations "on dry hills, in rich soil." This error has been adopted by others. In reality, the plant is strongly characterized by specific discrepancy, from *S. integrifolia*: not only by the appearance exhibited in the plate, but by the constancy of that physiognomy; and what removes it still more certainly from its congener just mentioned, is, its partiality for wet places, shaded by sedge or other grass, and herbaceous plants. The specimens found on "dry hills" are usually diminutive and sickly, scarce six or seven inches high, with a few small flowers, while in its favourite moist or boggy soil, it attains a stature of two feet and upwards, bearing a profusion of large showy flowers; and specimens are not unfrequent in the autumn, supporting one or two hundred capsules. The geographical range of this beautiful plant, according to Pursh, is from New York to Carolina. In the vicinity of this city it is quite common, decorating the meadows and bogs from the beginning of July till September. It is deserving of cultivation, and would doubtless increase in beauty by care. During the prevalence of the mania which caused the Scull-cap (*S. lateriflora*) to be sought

after, as a specific for the cure and prevention of hydrophobia, specimens of this plant were brought to me, under the impression that it was that worthless herb unmeritedly characterized with medicinal virtues, by ignorance and popular caprice. Indeed there is much reason to suppose that it was often collected, as well as other plants, for the *S. lateriflora*, and used for the cure of the terrific malady so empirically treated by that useless herb. The present species possesses, in common with many of its congeners, a degree of bitterness, which is the only virtue of a medicinal kind, that any of the tribe, except *S. galericulata* has hitherto exhibited.

TABLE II.

1. A flowering specimen.
2. A flower, separated.
3. Stamens.
4. Pistil. (All the size of nature.)

TABLE III.

ERYTHRINA HERBACEA.

HERBACEOUS CORAL TREE.

Diadelphia Decandria, Linn.

Leguminosæ, Juss.

GENERIC CHARACTER.

Calix sub-bilabiate, various. *Vexillum* of the corolla very long and lanceolate. *Legume* torulose, many-seeded.—*Nutt.*

SPECIFIC CHARACTER.

E. small, herbaceous; leaves trifoliate; folioles sub-hastate; spike very long; flowers linear-lanceolate, deep carmine-red; calix truncated, entire. B.

SYNONYMS.

ERYTHRINA foliis ternatis, caulibus simplicissimis fruticoso annuis. Hort. Cliff. 354.

CORALLODENDRON. Tournefort.

CORALLODENDRON foliis ternatis, caule simplicissimo inermi. Trew. ehret. t. 58.

CORALLODENDRON humile, spica florum longissima radice crassissima. Catesb. Car. 49. t. 49.

CORAL carolinensis, hastato folio. Dillenius, elth. 107. t. 90. f. 106.



Des. et Grav. Natur. h. W. P. C. Harten

J. Koenig

ERYTHRINA HERBACEA.

RoOT tuberous, large, contorted, branched below. Stem of a purplish colour, from two to three feet high, mostly herbaceous, but occasionally persistent, invested with a few prickles. Leaves ternate; petioles aculeate. Folioles slightly coriaceous, smooth, hastate-rhomboid, sub-acute, very much dilated laterally, appearing three-lobed; the terminal foliole larger than the lateral, and the latter often differing in size and shape. Flowers borne in long terminal spikes, supported by tall stalks. Pedicels for the most part ternate, sometimes solitary and irregularly scattered; always one-flowered. Calix entire and truncated, without honey-glands at the base; suddenly attenuated and corrugated with longitudinal furrows at its juncture with the pedicel; of a duller red hue than the conspicuous banner of the flower. Corolla with a long sabre-shaped vexillum of a deep carmine-red colour. Wings and keel inconspicuous, very short, membranaceous, and of a dingy purple hue. Stamens distinctly ten, coalescing by the filaments into a solid cylinder towards the base, except the tenth, which is separated. Germen pedicellated; seeds bright scarlet, with a black eye. A native of the open, bushy forests of Carolina, Georgia and Florida, and according to Mr. Nuttall, "not far from the sea-coast, rather rare."

This elegant perennial is the only herbaceous American species of the gaudy genus *Erythrina*, yet known. They are all characterised by red flowers, and hence the generic term, from *ερυθρος*, red. The English appellation of Coral tree likewise common to all the species, is expressive of the same constancy in this character.

The drawing and description of this plant were made from a fine specimen which flowered at Bartram's botanic garden this summer. The spikes were luxuriant, and the flowers numerous, forming a full florescence of more than a foot in length, at one time. The corollas were fugacious, and fell rapidly as the spike flowered towards its apex. The root of this plant is as large as a yam, and irregularly tuberous. Being a native of the south, it does not bear our winters without great care, and has hitherto, in the neighbouring gardens, been difficultly brought to flower. Mr. Curtis mentions, that in England it supports the winter very well in green-houses, in which it does not always die down to the root. If in that climate it does not often suffer under careful treatment, there does not appear any reason why good treatment would not in the middle and northern states, preserve it in health and vigour. And the superb appearance it makes when reared to florescence, will amply repay the trouble of its culture. The specimen in the green-house at Bartram's garden, is near four feet in height from the root to the top of the spikes.

TABLE III.

Fig. 1. The upper portion of a flowering spike.

2. A branch, with leaves.

3. The stamens, with calix and wings, and keel of the corolla.

4. A seed. (All the size of nature.)

TABLE IV.

RHEXIA VIRGINICA.

VIRGINIAN RHEXIA. MEADOW BEAUTY. DEER-GRASS.

Octandria Monogynia, Linn.

Melastomæ, Juss.

GENERIC CHARACTER.

Calix urceolate, 4 to 5-cleft. *Petals* 4, oblique, inserted upon the calix. *Anthers* declinate. *Capsule* setigerous, 4-celled, included in the ventricose calix. *Receptacle* subulate. *Seeds* numerous. (*Stamina* sometimes 10.)—*Nutt.*

SPECIFIC CHARACTER.

Stem angular, winged, garnished with scattered red hairs; leaves sessile, oval-lanceolate, serrated with bristled teeth, ciliated between the serratures, naked beneath, sparingly and irregularly hirsute above, from 3 to 5 and 7-nerved. B.

SYNONYMS.

RHEXIA septemnervia, Walt.? Fl. Car.; the variety β . of Pursh, perhaps, which has seven nerves, and attains a stature of four or five feet.

ALIFANUS vegetabilis carolinianus, Pluk. amalth. 8.

LYSIMACHIA non papposa virginiana, tuberariæ, foliis hirsutis, flore tetrapetalo rubello. Pluk. alm. 235. t. 202. fig. 8?

ROOT fibrous, perennial. Stem erect, from one to three feet high, branching above, nearly dichotomous or trichotomous, the upper forks having a flower in the point of their divarication; four-sided, membranaceously winged on the angles, smooth, nearly naked, but often garnished with scattered, reddish hairs. Leaves oval-lanceolate, attenuated at either end, sessile, mostly three or five, but often seven-nerved, serrated, the serratures distinctly bristled at their points, and the intervening parts ciliated; smooth and naked beneath, and of a pale green colour; darker green above, also smooth, but covered with distant hairs variously disposed. Peduncles terminal, dichotomous. Flowers solitary, terminal and axillary from the forks, sub-sessile, and, in luxuriant specimens sub-corymbose. Petals obovate, lake-red, delicately veined with a darker shade of the same hue, the portion of each one which contributed to form the external aspect of the flower-buds, covered with red hairs. Anthers falcate, orange-yellow, filaments gamboge-yellow. Calix regularly urceolate, differing in shape from the calix of *R. mariana*; reddish on one side, and closely covered with fine semi-viscous hairs, or hairs crowned with a gland and emitting a viscous fluid. Segments of the calix acuminate, expanding during florescence, but subsequently reflexed. The whole plant sometimes very hirsute. The ciliation of the leaves varies considerably, the serratures or little teeth being sometimes only setaceously armed, while at others, the whole margin is closely fringed. Inhabits rich boggy soil, where its luxuriance is proportioned to the moisture and shade. Generally in the open

borders of swamps, but often in damp meadows. Ranges from the northern states to Georgia, flowering from July until September.

The generic term *Rhexia*, is derived from $\rho\chi\epsilon\iota\varsigma$, a *rupture*, or *fracture*. It is the synonym in Pliny of a plant reputed to be endowed with many medicinal virtues, particularly for curing ruptures. His description has reference to a plant supposed by modern botanists to be a species of *Anchusa* or *Echium*, but it is not known why Gronovius and Linnæus adopted the generic name *Rhexia* for the American genus. Of this numerous tribe, containing thirty species, nine are indigenous to North, the rest to tropical America. The present one varies considerably in size, often flowering when only eight inches high in the northern and middle states, but attaining a stature in South Carolina and Georgia, of four or five feet. This circumstance must be owing to the greater congeniality of a southern sun to the constitution of the plant. Mr. Elliott is silent respecting the variety β . of Pursh, quoted by him from Walter, as having seven nerves and attaining a height of five feet; but describes *R. virginica* as being from two to three feet high with from five to seven nerves, giving at the same time, Walter's specific name *septemnervia*, as a synonym. Walter's plant was therefore in all probability, an uncommonly luxuriant variety, not constantly of that stature. The medium or most common height is about two feet. Culture, with due attention to the native soil, would doubtless render a plant of such susceptibility of variation, more showy and ornamental. It bears transplantation well,

and is worthy of introduction to our gardens. It is said to succeed only tolerably in England in bog-beds with plenty of water, and that it there requires to be sheltered from the winter. In this its native clime however, it is not likely to suffer from the cold of winter. The boggy swamps of the lower and middle parts of Jersey, are abundantly supplied with this species of *Rhexia*; and it there grows to a large size, bearing a corymb of numerous flowers. The petals are, however, fugacious; but the constant succession of new flowers, makes up for their short duration.

This species may be increased by sowing the seeds obtained from the wild plant, in the spring or autumn, in pots filled with fresh mould, and protecting them by frames. In a mild hot-bed they will be more forward. If sown later the seedlings seldom appear the same year. When they have attained a sufficient size, they ought to be planted out in borders and pots. They flower the second year, and often for three or four years successively.

Fig. 1. A flowering specimen.

2. A petal.

3. A calix opened, shewing the stamens and pistil.

4. A mature capsule.

(All the size of nature.)



Drawn from Nature by W.P.C. Linn.

F. Kamy.

RIBBECKIA VULGATA.

TABLE V.

RUDBECKIA FULGIDA.

SMALL HAIRY RUDBECKIA.

Syngenesia Frustanea, Linn.

Corymbifera, Juss.

GENERIC CHARACTER.

Calix sub-equal, mostly consisting of a double series of leaflets. *Receptacle* paleaceous, conic. *Pappus* a 4-toothed margin.

SPECIFIC CHARACTER.

Stem hispid; branches virgate, elongated, one-flowered; leaves alternate and sessile, oblong-lanceolate, denticulate, all over slightly hispid, narrow at the base and sub-cordate; calix leafy, nearly equal to the rays, which are deep golden-yellow; disk hemispherical, deep purple; chaff lanceolate. **B.**

SYNONYMS.

RUDBECKIA *chrysomela*, Mich. Flora Boreali-Am.

R. *aspera*, Desfontaines in Tableau de L'ecole de Botanique Jardin du Roi.

OBELISCOTHECA *integrifolia*, radio aureo, umbone atro-rubente, Dillenius, Hort. Elth.

Root perennial. Stem about two feet high, terete, sometimes simple, often branched, hairy. Branches virgate, elongated, pedunculiform, one-flowered. Leaves oblong-lanceolate, remotely denticulate, hispid on both sides and on the margin, the hair running regularly from the base towards the apex; attenuated toward the base, and sub-cordate, closely sessile, acute. The leaves on the pedunculate stem small, not serrated nor cordate, but attenuated at either end, and sessile. Lower and radicle leaves oval-lanceolate or oval, acute, attenuated at base, and more distinctly cordate, with more and larger teeth, and distinctly three-nerved. Flowers solitary, terminal. Rays oval, or oval-lanceolate, one-toothed or notched, about thirteen in number; gamboge-yellow, paler underneath. Disk hemispherical, auricula-purple. Calix leafy, leaves lanceolate, hairy, acute, nearly as long as the rays. Found in mountain and other meadows, and on the borders of damp woods, from the northern to the southern states, flowering from July until October.

The genus of which a species is here figured, was dedicated by Linnæus to the memory of his countrymen, Orlof Rudbeck, father and son, both alike conspicuous for their learning and botanical attainments, and his predecessors in the botanical professorship at Upsal. Linnæus chose a genus allied to *Helianthus*, because a sunflower constituted a part of the coat-of-arms of the family of Rudbeck.

The genus *Rudbeckia* contains several species not well understood or described; and the present species is an example of this. It has often been confounded with the *R. hirta*, to which it bears certainly much resemblance, though it has much smaller and deeper yellow-coloured flowers, and is much less hairy. The root of *R. hirta* is biennial; that of *R. fulgida*, perennial. The disk of the former is conical and dark brown, that of the latter is hemispherical and deep auricula-purple. The leaves of the calix of *R. fulgida* are broader, more ovate, and more hairy than in the *hirta*. Dillenius's figure in the *Hortus Elthamensis*, is a very good specimen. In that plate it will be perceived, that the attenuation and cordation of the base of the leaves of *R. fulgida* is absent. The leaves in the figure are broader at the base than in the *fulgida*, and only closely sessile. The attenuation of the leaves base-ways, in the *fulgida*, contrasted with the broader and rather auriculated bases of those of the *hirta*, is a constant and good discriminative character between these allied species. Added to which, in the *hirta* the whole plant is larger, more robust, and more branched, and has long white hairs variously and irregularly arranged, particularly on the leaves.

This being one of the perennial species of *Rudbeckia*, may be raised by either offsets, cuttings or seeds. The seeds should be sown in April, in light earth, on an open or exposed border, separating the seedlings, till autumn, and then planting them out in the places where they are destined to remain. They require a light and damp soil.

Fig. 1. The upper portion of a flowering specimen.

2. A lower stem-leaf in outline.

3. The lower part of the stem, cut asunder at the mark +.

(All the size of nature.)



Fig. 1.

Fig. 2.

Drawn from Nature by W.P. Burden

J. Boyd sc.

OENOTHERA GRANDIFLORA.

TABLE VI.

ŒNOTHERA GRANDIFLORA.

LARGE-FLOWERED EVENING PRIMROSE.

Octandria Monogynia, Linn.

Melastomæ, Juss.

GENERIC CHARACTER.

Calix tubulous, 4-cleft, segments deflected, deciduous. *Petals* 4, inserted upon the calix. *Stigma* 4-cleft. *Capsule* 4-celled, 4-valved, inferior. *Seeds* naked, affixed to a central, 4-sided receptacle.—*Nutt.*

SPECIFIC CHARACTER.

Stem somewhat glabrous, occasionally pubescent, branching; leaves lanceolate and ovate-lanceolate, glabrous, and sometimes pubescent; stamens declining. B.

Œnothera grandiflora.

ROOT biennial. Stem from two to four feet high, very much branched, the central branch or continuation of the main stem, much exceeding the other branches in length; generally destitute of pubescence, but not unfrequently downy. Leaves broad-lanceolate, from three to six inches long, and one and a half or two inches broad, scalloped towards the base, glabrous for the most part, though often pubescent. Upper leaves half the size of the lower ones, and much undulated on the margin, and irregularly folded and twisted. Flowers axillary, very large, sessile, agreeably odorous. Petals deeply emarginate, gamboge-yellow, expanding after sunset and during the night. Tube of the calix one and a half inch long; germ glabrous or pubescent. Stamens declinate, and somewhat shorter than the corolla. Anthers orange-yellow, filaments curved at their bases or near their points of origin. Stigma cruciate, the divisions of the cross clavate. Found native in the woods and fields, and about habitations, in Carolina and Georgia, flowering from May until August.

Theophrastus describes a plant, the root of which had caught the perfume of wine from being dried. Hence he called it *Œnothera*, from *οἶνος*, wine, and *θηρα*, a *searching* or *catching*. Modern botanists do not know whether any one of the species of our genus *Œnothera*, be the plant described by Theophrastus, though there is no doubt that this is the derivation of the name by which they are now grouped.

Of the numerous species of this genus native of this country, the present one may properly be considered the largest and most worthy of cultivation. The flowers possess a very agreeable scent, and in favourable soil and exposure, become even larger than represented in the plate. They first appear about the last of May or beginning of June, and continue successively blooming, until August and September: those however which appear last, are considerably smaller than those which expand in the first month of florescence. They open in the evening, just after sunset, by a very sudden retraction of the calix leaves, in a manner common perhaps to the genus, but more especially conspicuous in this species, and the *Oe. biennis*, to which it bears a very close resemblance, and of which it has been deemed by some a luxuriant variety. It is however specifically distinct. The same flower does not open a second time, but a numerous succession of new ones continues to adorn the plant during the time already mentioned. Luxuriant garden specimens are not uncommon, of four and five feet height, exhibiting a profusion of flowers at the same time. Pursh informs us that he has noticed a phosphoric light emanating during dark nights, from the flowers of the *Oe. biennis*; and it is not improbable that the same circumstance attends the expansion of the flowers of the present species. Mr. Elliott restricts the *habitat* of *Oe. grandiflora*, to the vicinity of habitations in South Carolina and Georgia, remarking that it is "certainly not indigenous in the low country."

The variety figured and marked β . in the botanical magazine, is separated by that mark from the original species, without good reason. The pubescence of the stem, germens, and leaves, in that variety, cannot be considered as a constant character, since in this country, both in its native and cultivated state, the pubescence is often discoverable in a greater or less degree, upon plants which have many leaves glabrous; whilst at the same time some specimens are found entirely smooth, as well as others wholly pubescent.

This plant, as well as the other species of the genus, are capable of being raised from seeds, and some of them by parting the roots and cuttings. The plants raised from seeds are the best, and they succeed very well in open ground.

Fig. 1. A flowering specimen.

2. A leaf from the lower portion of the stem, in outline.

(The size of nature.)



Drawn from Nature by W.P.C. Barton

F. Kearny Sc.

PINCKNEYA PUBENS.

TABLE VII.

PINCKNEYA PUBENS.

GEORGIA BARK.

Pentandria Monogynia, Linn.

Rubiaceæ, Juss.

GENERIC CHARACTER.

Calix 5-parted, one or two of the segments large, resembling coloured bracts. *Corolla* long and *tubulous*, border recurved. *Stamina* exserted, inserted near the base of the tube. *Capsule* roundish, at length opening with two valves in a contrary direction to the double dissepiment. *Seeds* winged, transversely arranged upon the receptacle.—*Mich.*

SPECIFIC CHARACTER.

Leaves opposite, oval, acute, attenuated at base, sub-tomentose beneath. B.

A low tree, from fifteen to twenty-five feet in height, rarely more, and from five to six inches diameter at base; very much branched, the young branches and stems tomentose, and garnished with deciduous stipules. Stems from a single root, numerous. Leaves opposite, four or five inches long, one and a half to two broad, light siskin-green underneath; petioles and one inch of the costa above and below, hyacinth-red, very pubescent. Flowers about one and a half inch long, numerous, supported on terminal corymbs. Limb of the corolla revolute, very pubescent, covered with minute carmine-red streaks or dots, anthers brownish, filaments white, pistils yellow. Peduncles and corymb fastigate, mountain-green and very pubescent. Young flower-buds ash-grey, larger ones yellow and streaked with dull red, all densely pubescent. Calix pubescent, calicine segments channelled and angular. At costa, whitish or straw-yellow, tinged at the edges with carmine-red. One, sometimes two of the calicine segments dilated into large bracteiform appendages, reticulately veined with green beneath, veined with red above, and cupped. Capsule round, compressed centrally, thin, cartilaginous, with a deciduous pellicle. Seeds numerous, round or irregularly angular, and alated. Native of Georgia, on the banks of St. Mary; found also from New river, South Carolina, along the sea coast to Florida;* and according to the younger Michaux, "a cool and shady exposure appears the most favourable to its growth."† "In sphagnous swamps, from

* Elliott. † North Am. Sylva, vol. ii. p. 260.

Carolina to Florida, usually not far from the sea coast.”* “In wet and boggy soil.”†

This interesting little tree, it is generally supposed was discovered by Michaux, sen. He was certainly the first botanist who described it from specimens found in 1791 on St. Mary's river, Georgia. Yet in the herbarium of the younger Linnæus, specimens have been found, which must consequently have been collected prior to Michaux's visit to North America, and it is supposed by European botanists that those specimens had been transmitted by the elder John Bartram, (the king's botanist.) Indeed, the name *Bartramia* was designed for it. Georgia bark was first introduced into England by the late Mr. John Fraser, in 1786, where it is only a greenhouse plant. Michaux gave it the name it bears, in honour of general Charles Cotesworth Pinckney, of South Carolina, a gentleman, who, to use the words of Mr. Elliott,‡ “amidst the avocations of a long life, actively and honourably devoted to the service of his country, has paid much attention to its botany.” The affinity of the Georgia bark with the different species of *Cinchona*, has been remarked by many botanists; but Michaux deemed it sufficiently at variance with that genus in its fruit, to justify a severation. Whatever may be the validity of the generic character, established by him, as separating *Pinckneya* from *Cinchona*, it seems conceded by botanists that the

* Nuttall. † Elliott. ‡ Sketch of the Botany of South Carolina and Georgia.

present plant might have been referred to the Peruvian genus, with propriety. So much does Pursh incline to this opinion, that he remarks, "if Pinckneya is not united with Cinchona, there will be some of the latter genus found belonging to Pinckneya." Unwilling to make innovations in the nomenclature of botany, which is already sufficiently confused by synonymy, the Pinckneya is suffered to remain where it was placed by Michaux, its reputed discoverer, although my own opinion on the subject, leans to the propriety of uniting it with the Peruvian barks, the more especially as, together with its generic affinities, it presents a similarity of medicinal virtues. The only difference in the fruit pointed out by Michaux, is the opening of the capsule in a line transverse with the axis of its partition, and not parallel to it as in Cinchona. Indeed, the fruit in its maturity is, as Mr. Nuttall has stated, distinctly bipartite in the line of the dissepiment as in Cinchona, and not contrariwise to the valves, but a continuation of their margin, proceeding inwardly to the axis of the capsule. Yet it must be confessed, there is a habit in Pinckneya foreign to that of the generality of the species of Cinchona, and perhaps the peculiarity of its œconomy, apparent in the bracteiform enlargement of one of the divisions of the calix, together with the form of the calix, which differs from that of Cinchona independently of the fruit, may be considered veritable points of discrepancy from that genus. It is remarked by some European botanists, that in the peculiarity just mentioned, this tree agrees with the first and second species of *Mussænda*, where the bracteiform enlargement of the calix occurs;

while in their opinion it agrees with *Cinchona* in habit. Hence they think it is a genus intermediate between *Cinchona* and *Mussænda*.

The name Georgia bark, imposed on this tree, is derived from the circumstance of its medicinal employment by the Georgians, and it is said successfully, in intermittent fever. It is the inner bark which is possessed of bitter and febrifuge virtues, and is used in decoction. A more particular account of the medicinal virtues of this native bark, which promises to be the best indigenous substitute for the Peruvian medicine, will be given in the third volume of my "Vegetable Materia Medica of the United States," which will be published in a short time.

The drawing was made from fine specimens, obtained from the garden of Messrs. Landreth, near this city, where it flowered in great perfection this summer. It is there a bushy shrub, about eight feet high, and grows luxuriantly, though in an open border.

The table represents a flowering specimen, culled in July, of its natural size.

TABLE VIII.

LINUM LEWISII.

LEWIS'S FLAX. MISSOURI FLAX.

Pentandria Pentagynia, Linn.

Caryophyllæa, Juss.

GENERIC CHARACTER.

Calix 5-parted, persistent. *Petals* 5. unguiculate. *Capsule* superior, 10-valved, 10-celled. *Seeds* solitary. (Filaments of the stamens united at the base.—*Nutt.*)

SPECIFIC CHARACTER.

Plant glaucous; segments of the calix ovate-acuminate, petals cuneate, round at the apex; leaves crowded, linear, stems numerous. B.

SYNONYM.

LINUM perenne, Nutt. Gen. Am. Pl. i. p. 206.

Root annual and perennial? Whole plant glaucous and leafy. Stem erect, round, smooth, glaucous, from one to two feet high, branching. Foliage crowded, the leaves from a quarter of an inch to an inch long, and from the sixteenth to an eighth of an inch wide, smooth, glaucous on both sides, linear, (lanceolate-linear, Pursh) attenuated at base, sub-acuminated or terminating in a sharp apex, (hardly mucronate, as Pursh describes them) slightly arcuate, erect in the young plant, but after florescence, or after the plant has attained its full growth, reflexed. Flowers smaller than those of *Linum*



Fig. 1.



Fig. 3.



Fig. 2.

usitatissimum. Petals flax-flower-blue beneath, darker above, streaked with deep ultramarine-blue towards the base; claws yellow, stamens enclosed in the kind of tube formed by the claws of the petals, and the filaments only appearing when the flower is fully expanded. Anthers straw-yellow, filaments white below, blue towards the top. Styles white, stigma yellow. Calicine scales ovate, acute, (or under a lens acuminate) marginated, and attenuated at base, with a pellucid line in the centre, and somewhat dotted with diaphanous spots under a lens. A native of the banks of the Missouri and Red river, Kiamesia plains, and the vallies of the Rocky Mountains, growing always on the declivities of water courses. Flowers in July.

The generic term *Linum*, λινον, of Dioscorides, Theophrastus and other Greek authors, is derived from λινεω, to hold, owing to the tenacity of the fibres of the bark, a property common to all the species hitherto discovered, and one rendering this genus of plants of inestimable value, in commerce and economy. This pretty species of flax was discovered by the late captain Lewis, in his travels with captain Clark, under the direction and at the expense of the government of the United States. He found it growing in the vallies of the Rocky Mountains, and on the banks of the Missouri. Pursh, who first described this plant, affixed the name of captain Lewis to it, in commemoration of the discovery. Mr. Nuttall informs me that it begins to appear about fort Mandan, becoming more abundant towards the mountains, but that he did not see it lower down on the Missouri than the Mandan village; and on the banks of Red river, near the plains of Kiamesia river, it is most abundant; that near Red

river it is an annual, and on the Missouri a perennial. The bark of this species possesses the same kind of tough fibres as common flax; and, as under cultivation it appears to be perennial, it would seem to be worth attention. The Missouri Indians, Mr. Nuttall informs me, are in the habit of making lint and wadding for their guns from its bark. Hence, as a native vegetable, it promises to be useful by its abundance in the rich and luxuriant soils of the western countries, in which it is indigenous. That botanist has supposed the plant to be identical with *L. perenne*, of Europe. Yet it differs from that species in its abundant, crowded foliage, still more in being entirely glaucous. From common flax it differs in the same characters, yet such is its strong resemblance to that species, that it has been mistaken for it by some; in its native situations.* The specimen here figured was raised from seeds brought by Mr. Nuttall, and was a good sample of the wild plant.

Fig. 1. A flowering specimen, the natural size. 2. A petal. 3. A capsule.

* On comparing the present plant with fine specimens of *Linum perenne*, in the extensive herbarium of the Acad. Nat. Sci. Phil. just received from France, I observe that in that species the calix leaves are only acute—in *L. Lewisii*, they are acuminate, particularly on the mature capsule; the branch leaves are much broader than those of *L. Lewisii*, and broader than the cauline leaves of the same plant, and more acuminate, rather mucronate. In habit, however, there appears the most conspicuous difference. *L. perenne* is a larger plant, not glaucous, and less leafy than the *Lewisii*; the seeds are of a paler colour. In reality, *L. usitatissimum*, *L. perenne* and *L. Lewisii*, are much alike, and in this genus the specific characters are not very strongly marked. The general physiognomy seems more discriminative than any definite character in calix or leaves.



From a drawing by W.P. Barton.

HIBISCUS MUTABILIS

TABLE IX.

HIBISCUS SPECIOSUS.

SCARLET MALLOW.

Monadelphia Polyandria, Linn.

Malvaceæ, Juss.

GENERIC CHARACTER.

Calix double; exterior many-leaved. *Petals* 5. *Stigmas* mostly 5. *Capsule* 5-celled, many-seeded.

SPECIFIC CHARACTER.

Leaves 5-parted, palmate, smooth; divisions lanceolate, acuminate, serrated, entire towards the apex; exterior calix ten-leaved, stem, branches, petioles and peduncles very smooth and glaucous. Calix glabrous. B.

SYNONYM.

HIBISCUS coccineus, Walt. Car. 177.

Root perennial. Whole plant invested with a fine glaucous covering, easily rubbed off. Stem herbaceous, erect, from six to nine feet high, branched, perfectly cylindrical and smooth, purplish on one side, yellow on the other, and when the glaucous covering is rubbed off, conspicuously maculated with longitudinal yellow spots. Branches numerous, from twenty to thirty, each proceeding from the axill of a large cauline leaf, very round, purplish, alternate, two and a half feet long, gradually becoming shorter towards the top, giving a pyramidal appearance in the outline. Each branch terminates in three (rarely four) separately pedunculated flowers. Peduncles terete, smooth, purplish, the younger ones yellow. Leaves smooth, deeply palmate, or five-parted; the divisions unequal, the two exterior ones being shortest. Each segment lanceolate, deeply serrated in the middle, and entire towards the apex, which is a prolonged acumination. Flowers large, petals spathulate, plicated, clawed, and of a rich shining carmine-red; claws three-fourths of an inch long, very shining, carmine-red above, invested on either margin and under side with white pubescence. Stamens numerous, with short filaments, stigmas five, all deep carmine-red. Anthers yellow, or appearing so from the colour of the pollen. Calix smooth, the exterior segments curled inwards, tinged with purple, ten in number, rarely more. A native of South Carolina and Florida, inhabiting the banks of rivers and flowering in August and September.

The generic term *Hibiscus* is from *ἵβισκος*, a Greek word of unknown derivation, for the *αλθαία*, of Theophrastus, which is con-
jec-

tured to be the marsh mallow, (*Alhæa officinalis*) or something very like it. It designates a tribe of tropical malvaceous plants, consisting of about 70 species, indigenous for the most part to South America, India and its islands. Scarcely any are found native to Europe. The Cape of Good Hope and Persia have some species, and about ten more inhabit North America, none of which however are arborescent as some of the tropical ones are. Of the North American species the gorgeous plant here figured is certainly the most showy. Though indigenous to the southern section of our country, yet a northern climate is not incompatible with its health and vigour. It is found, in a state of cultivation, in the open borders of some of our gardens, where it flourishes and matures seed; and even in England, where it is a favourite plant, it is nearly hardy. The specimen from which the drawing was made, was taken from a plant which flourished in an open border in the garden of the Danish minister in this city, where it had endured the preceding winter without any care. In that situation, presenting favourably to the sun, it attained a height of full nine feet, bearing a profusion of flowers; and it had arrived at this maturity in a period of four months from its first appearance above ground.

This species continues to bloom a considerable while; the cauline flowers first appearing, and afterwards those on the branches successively, until frost. This circumstance, together with its stature, render it very ornamental to gardens; hence it should be preferred to the common and less beautiful plants so much cultivated and gene-

rally esteemed, as China aster, marigold, &c. The bark is tenacious, and would probably yield, by maceration, a good kind of hemp. It is surprising, that this plant, so deservedly prized in Europe, for the splendid appearance of its flowers, is almost unknown in the northern parts of this its native country, while far less elegant and less ornamental exotics are dearly purchased and nurtured in our gardens.

The figure represents a flowering specimen of the natural size, culled in September.



Drawn from nature by A. P. Barten.

ECHITES DIFFORMIS.

TABLE X.

ECHITES DIFFORMIS.

Pentandria Monogynia, Linn.

Apocynae, Juss.

GENERIC CHARACTER.

Contorted. *Calix* 5-parted, small. *Corolla* salverform, border 5-cleft, orifice naked. *Anthers* rigid, acuminate, convergent into a cone, "cohering to the stigma by the middle." R. Brown. *Style* 1. *Stigma* annulate, capitulum 2-lobed. *Follicles* 2, very long and straight. *Seed* comose. *Nutt.*

SPECIFIC CHARACTER.

Stem climbing; the lower leaves nearly linear-lanceolate, the upper oval-lanceolate, acuminate, invested beneath with a villous pubescence; raceme cymose; stamens included; segments of the border of the corolla equilateral. B.

SYNONYM.

ECHITES puberula, Mich. 1. p. 120.

ROOT perennial, stem scandent, red. Leaves opposite, lanceolate, oval-lanceolate, and even oval above, lower ones linear, or nearly so, on short petioles, acuminate, grass-green, having a silky pubescence underneath, thickest on the costa and veins. Flowers small, straw-yellow, borne in trichotomous corymbs or cymose racemes, which are sometimes axillary, at others originate from between the petioles. Corolla funnel-shaped, the tube obscurely four-furrowed, border five-cleft, the segments as in *Parsonsia* of R. Brown, equilateral, ovate, the mouth lined with an aggregation of soft, villous hairs. Calix sulphur-yellow, angular at the base, five-toothed, the teeth acute, and carmine-red. Anthers simple, narrow-sagittate, and rigid, adhering to the middle of the annulate two-lobed stigma which crowns a style nearly as long as the stamens, and very viscid. Germs two, embedded at base in a glandular, five-toothed torus. Follicles very long, slender and straight. Grows in damp rich soils and swamps in Virginia, the Carolinas, and Georgia.

Browne, in his history of Jamaica, designated a genus of lactescent plants with twining stems, opposite and smooth shining leaves, and cymose or corymbose flowers, by the generic appellation *Echites*, from *εχις*, a *serpent*, or *viper*. Professor Martyn supposes this name to have been chosen on account of the deleterious properties of the plants of the tribe it was to comprise, and for the propriety of the name, the smooth serpentine habit of all the species appears to afford an additional reason.

In North America we have but one species of this genus,—that which is here figured. In this there does not appear to be any deleterious property. The flowers are without beauty, and wholly destitute of scent, a circumstance in which it agrees with all the species of the genus hitherto known, which Browne informs us, are without odour.

In this part of our country, *Echites difformis* is only known as a green-house or pot-plant. A native of the south, it requires the genial protection of a conservatory or green-house during the winter months.

The table represents a flowering specimen, taken from the upper portion of a plant, in the valuable collection in the gardens of Messrs. Landreth.

TABLE XI.

CHIMAPHILA MACULATA.

SPOTTED WINTER-GREEN. SPOTTED-LEAVED PIPPSISSEWA.

Decandria Monogynia, Linn.

Ericae, Juss.

GENERIC CHARACTER.

Calix 5-toothed. *Petals* 5. *Style* very short, immersed in the germ. *Stigma* annulate, orbicular, with a 5-lobed disk. *Filaments* stipitate. *Stipe* discoid, ciliate. *Capsule* 5-celled, opening from the summit, margins unconnected. *Pursh*.

SPECIFIC CHARACTER.

Leaves ovate-lanceolate, round at the base, incisely serrated, discoloured. Stem 2 to 3-flowered; filaments supported by a villous stipe. B.

SYNONYM.

Pyrola maculata, Linn.



CHIMAPHILA MACULATA.

ABOUT a span high. Root perennial, horizontal, somewhat thicker than a crow-quill, contorted near the stem, of a yellow colour; same root sometimes, though rarely, sending up two or more reddish-purple stems. Leaves collected together to the number of four or six, generally in two clusters, appearing somewhat like two whorls; ovate-lanceolate, those of the lower cluster occasionally quite ovate, acute, deeply incised with irregular and distant serratures; dark olive-green above, marked by a longitudinal whitish line, intersected by a similar discolouration in the direction of the veins, light dull-green, tinged with reddish-purple underneath. Flowers greenish-white, drooping, very fragrant, generally three, but sometimes only two on each stem, supported by greenish peduncles, which arise from the apex of the stem. Petals generally five, but sometimes six, ovate, cupped, slightly tinged with lake-red at base. Stigma large, urceolate, depressed, furrowed, green, surmounted with a flattened, viscous crown. Stamens ten; sometimes, though rarely, twelve, in which case there are six petals. Filaments stipitate, stipe woolly or villous, anthers greenish-blue.

Grows in dry sandy or gravelly woods, covered with loose, rich mould or decayed leaves, from Canada to Georgia; and as the *C. umbellata* grows in Florida, the present species may be supposed to accompany it there. Flowers in July.

The genus *Chimaphila* was established by Pursh, and named from $\chi\epsilon\iota\mu\alpha$, *hyems*, and $\phi\iota\lambda\omicron\varsigma$, *amicus*, the combination of which is indicative

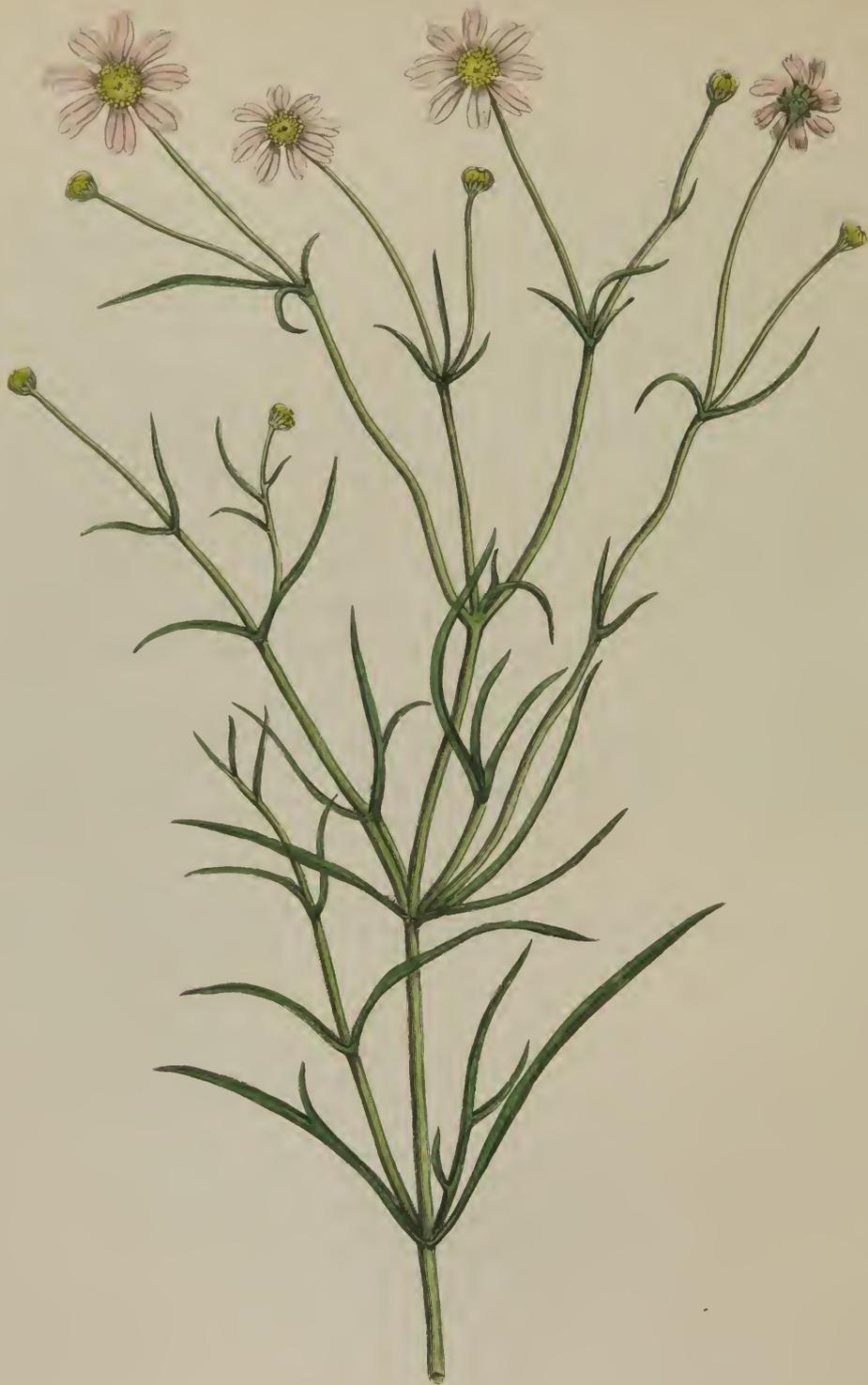
of one of the common English names of this species and its congener *Chimaphila umbellata*. The resemblance between the two species is very striking when the plants are separately viewed, and has given rise to the mistake of collecting one for the other, or both, indiscriminately, for the Pippissewa. The plant now under notice, has been called poison Pippissewa by the Indians. It grows in company with *C. umbellata*, the different species of *Pyrola*, *Andromeda*, and *Vaccinium*, delighting in the same kind of soil as they flourish in. It exhales a very delicate and aromatic fragrance, resembling that of the Pippissewa, but more intense. By the whitish marks in the leaves, it may readily be distinguished from the Pippissewa, when sought by persons unacquainted with the botanic characters of the two plants. Like that species, *C. maculata* is possessed of active medicinal virtues, which will be particularly detailed elsewhere.*

Fig. 1. Represents a flowering specimen, of the size of nature.

2. The pistil.

3. A stamen.

* Vegetable Materia Medica of the United States, Vol. III.



COREOPSIS ROSEA

TABLE XII.

COREOPSIS ROSEA.

ROSE-COLOURED COREOPSIS.

Syngenesia frustranea, Linn.

Corymbiferae, Juss.

GENERIC CHARACTER.

Calix double, both many-leaved (8 to 12) interior equal, sub-coriaceous and coloured.

Receptacle palleaceous, scales flat. *Seed* compressed, emarginate, bidentated, dentures rarely awned. *Nutt.*

SPECIFIC CHARACTER.

Small and very smooth; stem mostly simple; leaves linear, entire, axils leafy; flowers few, long-pedunculate, dichotomal and terminal; rays red, unequally 3-toothed. *Nutt.*

Root perennial. **Stem** very smooth, round, yellowish, simple and branched. **Leaves** opposite, connate, ciliated at their point of union, about two or three inches long and an eighth of an inch broad, channelled, often inclining to be pinnatifid; the pinnæform segments arcuate. **Axils** leafy, and sometimes giving origin to small, imperfect branches. **Flowers** from three to six and eight, most commonly

three, small; disk gamboge-yellow, rays about eight, peach-blossom red, three-toothed, middle tooth large. Peduncles slender. Exterior calix small, interior consisting of eight segments or leaves. Seeds entire, naked. In the grassy swamps of Jersey, and thence to Georgia; flowering in August.

The generic term *Coreopsis*, is derived from *κορις*, a *bug*, and *οψις*, *appearance*, in allusion to a fancied resemblance of the seed to an insect. This genus, with the accessions made to it by late discoveries, contains at this time, about twenty-two or twenty-three species. The one here noticed, is frequent in the lower part of the state of New Jersey, near and below Salem, and is also found as far as Georgia in abundance. To Mr. Nuttall we are indebted for the first description of it. The flowers vary somewhat in colour, some being nearly white, while others, and the greatest proportion, are of the hue represented in the plate. In shaded situations, the white flowers are most frequent, and as the blossom-colour becomes stronger in those plants exposed to the sun, cultivation of this species would probably much improve its colour, as well as render it more robust. It thrives best when contiguous to water; and in such situations as afford it a free supply of moisture, it grows tall, and thick as grass.

The plate represents the upper portion of a flowering specimen, the size of the wild plant.



Drawn from Nature by W.P.C. Barton.

Jacob J. Fiecher Sc.

SCHIZANDRA COCCINEA .

TABLE XIII.

SCHISANDRA COCCINEA.

SCARLET SCHISANDRA.

Monoica Pentandria, Linn.

Menisperma, Juss.

GENERIC CHARACTER.

Calix 9-leaved ; leaves arranged in three series. *Corolla*, none. *Anthers* sub-sessile, cohering at their points. *Berries* one-seeded, inserted upon an elongated, filiform receptacle. *Michaux*.

SPECIFIC CHARACTER.

Smooth. Leaves petiolate, sub-carneous, lanceolate-oval, acute at apex and base, margin undulate, very rarely cut into sub-dentiform angles. B.

A SCANDENT twining shrub, attaining a height of ten feet and upwards. Leaves very numerous, somewhat fleshy, of various sizes, but much larger and more ovate on the lower part of the plant than

above, alternate or in triplets, destitute of stipules, petiolated, lanceolate-ovate, glabrous, shining on the upper disk, very much and irregularly waved on the margin, and attenuated equally at apex and base. Petioles from half an inch to an inch long, tinged with red. Flowers without bracts, axillary, solitary and few, consisting, both male and female, of a perianth of nine concave, two-coloured, deciduous leaves, the exterior three being yellow, and the largest—the inner six gradually smaller, and bright-scarlet.

Male flower. There is no corolla, nor are there filaments to the anthers, which are five in number, closely sessile on the receptacle. They are of an oblong shape, contiguous at base, cohering by their summits, and separated in the middle by chinks.

Female flower. Calix same as in the male. Likewise no corolla, that which appears to be such in both male and female flowers, being a nine-leaved perianth. Pistils numerous, with sessile, pointed stigmas; germens numerous, egg-shaped, closely arranged on a receptacle which becomes subsequently elongated. Fruit consists of a raceme of carmine-red, one-seeded, smooth, shining, ovate berries, situated on a carmine-red elongated receptacle, which supports also, at least as many yellow abortive acini, as ripe berries. Seed ovate-oblong, somewhat smooth; a native of the southern states, growing in shady places. Near Savannah. Flowers in June and July, ripening its fruit in September and October.

This plant is the only species of a North American genus established by Michaux, and named *Schisandra* by him from $\Sigma\chi\iota\iota\sigma\iota\varsigma$, a *fissure*, and Ανρ , a *male*, because the anthers are nearly separated by fissures in the receptacle of the flower. He found it indigenous in the Carolinas and Georgia; and further north than North Carolina it has not been found. Its remarkable feature is the mode of producing its fruit: for a long raceme of berries could scarcely be expected to follow the solitary female flower, supported by a filiform nutant peduncle. This becomes a long, red receptacle; and a progressive development of a raceme of berries ensues, from the aggregate germs of the female flower. So far as botanists have yet discovered, *Schisandra* is peculiar to the southern section of the Union. It has certainly never been seen in a wild state north of the Carolinas. It is a hardy perennial, and withstands the severity of our winter in this state without any particular care. It has been introduced into the gardens of England by Lyon, since the year 1806, and flourishes there in exposed borders, suffering only from very severe winters.

The figure was designed from specimens obtained last summer at the gardens of Messrs. Landreth, where it flowered in perfection the first time for years, though it has always been conspicuous for its vigour.

Fig. 1. An upper portion of the shrub.

2. A male flower, separated.

3. A back view of the same.

4. A female flower, the perianth cut away, shewing the aggregate germs.

5. The raceme of berries.

(All the size of nature.)





Drawn from Nature by W.P.C. Barton.

Jacob J. Plocher. Sc.

LUDWIGIA MACROCARPA .

TABLE XIV.

LUDWIGIA MACROCARPA.

LARGE-CAPSULED SEED-BOX, OR LUDWIGIA.

Tetrandria Monogynia, Linn.

Onagrae, Juss.

GENERIC CHARACTER.

Calix 4-parted, persistent, superior. *Corolla* 4-petalled, or none. *Capsule* 4-sided, 4-celled, inferior, many-seeded.

SPECIFIC CHARACTER.

Erect, branched, somewhat smooth; leaves alternate and opposite, lanceolate, asparagus-green beneath; peduncles one-flowered, axillary; capsules globose, 4-sided, shining; calicine segments large, coloured and crowned. B.

SYNONYMS.

LUDWIGIA alternifolia, Linn., Willdenow, Aiton, Gmelin, Lamarck, and others.

L. capsulis cubicis apice perforatis, Linn. Hort. Ups. 30.

L. capsulis subrotundis, Linn. Hort. Cliff. 491.

L. non papposa flore luteo majore, &c. Pluck.

L. ramosissima, Walter.

A PERENNIAL plant, attaining a height of from two to three, or four feet. Stem erect, very much branched, quadrangular, of a

reddish colour, somewhat rough on the angles, and pubescent towards the summit; young branches and bases of leaves, particularly the younger ones, carmine-red. Leaves alternate and opposite, sessile, lanceolate and linear-lanceolate, acute, the terminal ones linear, and obtuse, all very entire; pale or asparagus-green beneath, but not hoary as described by some writers; light yellow-green and smooth above. The mid-rib, nerves of the under side of the leaves, and angles of the stem, covered with short, scattered hairs, and the same thing occurs on the margins of the leaves, which appear, particularly in dried specimens, to be fringed with short ciliae. Flowers axillary, often solitary, but mostly in pairs, supported by short peduncles. Calix larger than the corolla, its segments ovate and acuminate, five-nerved; the apex of each segment tipped with carmine-red—the whole of the mature calix of a dull-red colour. Corolla, when fully expanded, rotate. Petals four, ovate, gamboge-yellow, very caducous. Stamens constantly four, filaments very short. Anthers pale-yellow. Stigma viscid. Capsules large, shining, of a globose, cubical form, with four angles or wings, the wings ciliated, and perforated at the top. Seeds small and numerous.

Grows from New England to Georgia, inhabiting grassy swamps, low wet meadows, particularly along the margins of meadow drains and ditches, and near the banks of small waters. It delights in a moist and boggy soil. Flowers in June, and continues to bloom till August, or even later.

The genus *Ludwigia* was named by Linnæus in honour of Christian Theophilus Ludwig, Professor of Medicine in the University of Leipsic, and author of many celebrated works on Botany and Medicine. It is a numerous genus. In North America there are thirteen species, most of which are indigenous to the southern states. The specific appellation, *macrocarpa*, was given by Michaux to designate its large capsule: but as some other species possess this character, it is scarcely a better name than *alternifolia*, which it was intended to amend, because of its expressing a character not constant in the plant, the leaves being frequently opposite. As the latter specific term actually led to misconception or error, the less exceptionable one by which the plant is here noticed, has been preferred. This is the commonest species of *Ludwigia* in Pennsylvania, where it is decidedly perennial. It appears strange that so many writers have regarded it as annual. Mr. Elliot, however, has found it perennial in Georgia. The *L. pilosa* which it much resembles, its hairyness apart, is often found with it, inhabiting similar situations. *L. macrocarpa* is very common in the vicinity of this city, and the *pilosa* very rare.

Fig. 1. A flowering specimen.

2. A petal.

3. The germ, stamens, and pistil.

(All the size of nature.)

TABLE XV.

ORCHIS TRIDENTATA.

THREE-TOOTHED ORCHIS.

Gynandria Monandria, Linn.

Orchideae, Juss.

GENERIC CHARACTER.

Corolla ringent, upper leaf vaulted. *Lip* dilated, the base beneath calcarate. *Pollinia* (masses of pollen) 2, terminal, adnate. *Nutt.*

SPECIFIC CHARACTER.

Lip lanceolate, three-toothed at the apex, petals obtuse, horn filiform at the apex, clavate, ascending, longer than the germ. *Willd.*

SYNONYMS.

ORCHIS *clavellata*, β . *tridentata*, Michaux.

ORCHIS *tridentata*, Muhl. in litt.



ORCHIS TRIDENTATA.

Root perennial and palmate. **Stem** angular, from ten to twelve inches high, having three leaves; the lower, proceeding from the root by a sheathing duplicature of its base, is about six inches long, spatulate or ensiform-lanceolate, attenuated at base, and somewhat obtuse, conspicuously marked with numerous longitudinal nerves. Asparagus-green beneath, yellowish-green above, glabrous and shining. The middle leaf about an inch or an inch and a half long, linear-lanceolate and channelled, also sheathing the stem. The upper one linear, and half an inch long. **Spike** half a finger's length, six, eight, and ten-flowered. **Bracts** lanceolate, acuminate, shorter than the germ. **Flowers** small, pale sulphur-yellow, and under a lens full of pellucid glands. **Germ**s green. **Petals** nearly equal, ovate, obtuse. **Lip** lanceolate, longer than the petals, three-toothed at the apex; hence the specific name. **Horn** filiform, clavate at the apex, longer than the germ.

An inhabitant of shaded bogs, from New York to Virginia, flowering in July and August.

The genus orchis is of great antiquity in botany, and derives its name from the testicular shape of the roots in many species. Being very extensive, it necessarily comprised many plants which might well be separated into distinct genera. Accordingly it was subjected to revision by Willdenow, who allotted some of the species to a distinct genus, which he denominated *Habenaria*. But this group has

been more strictly scrutinized by Mr. R. Brown in the last edition of the Hortus Kewensis. He excludes from orchis, all species which are without a simple pouch containing the bases of both the masses of pollen together. These are separate, each with its own pouch in Ophrys, and separate without any pouch, which, so arranged, becomes a large and very natural genus. The North American species are above twenty in number. The present one is not very common in this state, nor very abundant where found. It has been made a variety of *O. clavellata* by Michaux; but certainly has legitimate claims to a distinct specific place. Like most of the orchidean plants, it grows naturally in rich, boggy soils, formed by the decomposition of vegetable substances. Moisture and shade seem necessary to it: at least it thrives best in situations commanding both.

Fig. 1. The whole upper part of the plant, separated.

2. The lower part and root.
3. Front view of a flower, with bract and germ appended.
4. Back view of the same.
5. Petals and lip, shewing the three teeth.

(All the size of nature.)

1850



Drawn from Nature by Wm. Gordon

1160

RUDEBECKIA LACINIATA.

TABLE XVI.

RUDBECKIA LACINIATA.

JAGGED-LEAVED RUDBECKIA.

Syngenesia Frustranea, Linn. *Corymbiferae*, Juss.

GENERIC CHARACTER.

Calix sub-equal, mostly consisting of a double series of leaflets. *Receptacle* paleaceous, conic. *Pappus* a 4-toothed margin.

SPECIFIC CHARACTER.

Radicle leaves pinnate; folioles ovate, unequal at base, sub-trilobed, dentate; stem-leaves three-parted and undivided, oblong, dentate; pappus crenate; stem glabrous. *Willd. enum.* and *Schroeder.*

SYNONYMS.

CHRYSANTHEMUM Americanum, perenne, &c. Moris. Hist.

DORONICUM Americanum, laciniato, folio. Bauh. pin.

ACONITUM helianthemum, canadense. Corn. Canada.

PLANT from four to ten feet high. Root perennial. Stem erect, simple below, branched above, smooth and glabrous. Radicle leaves sub-pinnate, laciniate; leaflets three-lobed; lobes oval-lanceolate, acuminate, lacinate; those of the stem three-parted; the divisions acuminate; the upper leaves small, ovate, acute; edges of all scabrous. Flowers large; disk spheroid at first, afterwards conical; loose-flowered; rays, generally ten in number, lanceolate, obtuse, deeply notched or emarginated; of a brilliant yellow colour, and during the first period of florescence horizontal, afterwards drooping. Grows from Canada to the southern states, inhabiting the edges of swamps and ditches and watery thickets, flowering from August until October.

This species of *Rudbeckia* is one of the commonest autumnal plants in the middle states of the union. It is likewise frequent in those as far north and east as Connecticut. Its height renders it very ornamental; and makes it also very conspicuous among the great number of showy plants which at this season decorate the grounds. The species it most nearly resembles, is the *pinnata* and *digitata*: but from these it is easily discriminated by attending to the botanical characters given in the books. With the *R. pinnata* it has, by some, been thought to be easily confounded. Its very smooth stem and difference of the upper leaves, however, distinguish it sufficiently from that species.

R. laciniata is a hardy perennial, becoming greatly improved by cultivation. It is hence a very proper native to introduce into the borders of our gardens. A single root transplanted in the spring or early summer, will by the succeeding year be so much multiplied, as to form a large and showy cluster. Cultivation, besides rendering the flowers larger and more numerous, gives a tendency to ramification of the stems from the root, thus adding to the strength and beauty of the plant as a border ornament of gardens. In Pennsylvania, this is the only very common species of *Rudbeckia*, and here it is every where to be met with in the situations already specified as its habitat. In the vicinity of Philadelphia it is most common on the borders of the Schuylkill and Delaware, along the course of these rivers on either side, growing in company with different species of *Helianthus*, and other late-flowering perennials.

Fig. 1. The upper portion of a flowering specimen of the plant, shewing the trilobed and ovate leaves.

2. A radicle pinnate leaf.
3. A neutral floret.
4. A perfect floret of the disk.

(All the size of nature.)

TABLE XVII.

OXYCOCCUS MACROCARPUS.

AMERICAN CRANBERRY, OR CRANE BERRY.

Octandria Monogynia, Linn.

Ericae, Juss.

GENERIC CHARACTER.

Calix superior, 4-toothed. *Corolla* 4-parted; segments sub-linear, revolute. *Filaments* connivent. *Anthers* tubulose, semi-bifid. *Berry* many-seeded. *Persoon*.

SPECIFIC CHARACTER.

Repent; stems assurgent; leaves oblong, very entire, distantly and obscurely sub-serrulate, flattish, obtuse, glabrous, white underneath; pedicels elongated; segments of the corolla lanceolate. *Pers. Pursh, and B.*

SYNONYMS.

Vaccinium macrocarpon. Willd. Ait.

V. oxycoccus β . *oblongifolius*. Mich.

STEM fruticose, creeping and radican, round, of a brownish-red colour, and from one to four feet long. Branches numerous, of unequal lengths, flexuose, obliquely assurgent, those bearing flowers proliferous and more erect. Leaves numerous, from three to five-eighths of an inch long, and from one to two-eighths broad—the younger ones smallest and crowded towards the tops of the branches,



Fig. 1.

Fig. 2.

ASPLENIUM NUDICORNIS.

but particularly on the vernal ramuli, which produce the flowers—oval-oblong, smooth, obtuse, flat; the margin recurved, and in the older leaves distinctly marked by about four serratiform indentures, scarcely deserving the appellation of serrulations; divided in the middle above and more conspicuously beneath, by the costa, from which the veins run transversely to the margin. The young or vernal leaves are narrower than the older ones of the preceding year, and tufted at their apices by loose pubescence. They are all of a sap-green above, and glaucous or celandine-green underneath. Flowers generally in pairs about an inch or an inch and a half asunder, and supported, towards the termination of the vernal branches, by erect, reddish, bibracteate, pubescent peduncles, suddenly bent near the ends: thus, together with the calix and flower-bud, giving them the appearance of a crane's head and neck. Bracts acute and pubescent. Segments of the corolla linear-lanceolate, recurved towards the calix, channelled, white, delicately tinged towards their apices with carmine, and maculated with the same hue on the back. Calix pubescent. Pedicels of the berries nutant or arcuate. Flowers continuing to expand until immature berries are produced on the same stem. Immature berries celandine-green and yellowish. Ripe berries generally of a fine carmine colour, but often light and speckled with dark-red. They vary in shape from round to oval-oblong—the commonest form is that represented in the plate. They are a little acerb and very acid.—Grows in morasses and swamps of rich boggy bottoms, and covered with sphagnum, from Labrador to Carolina—Pursh says, in sandy bottoms and on high mountains. Where found,

it is in great abundance, giving the name of Cranberry-swamps to such localities. Extensive Cranberry-swamps are met with in New Jersey; the nearest to Philadelphia is about a mile south-east of Kaighn's Point. Flowers in May, and continues in bloom till July, at which time young berries are produced. The ripe berries are often persistent during the winter.

The genus *Oxycoccus* was first established by Persoon. It comprises a few species of *Vaccinium*, which possess the characters noted at the head of this chapter; and *Vaccinium hispidulus*, thrown by Pursh into *Gaultheria*, has been thought more properly to belong to this genus. The American species of the genus are but three. 1. The plant under present notice. 2. *O. hispidulus*. 3. *O. erythrocarpus*. It is entirely a North American genus, with the exception of *O. Europæus*, (*Vaccinium oxycoccus* of Willd.) or European Cranberry, which has never yet been detected in any part of North America. The species here described is called specifically *macrocarpus*, from the large size of the capsule or berry. The common English or vulgar name Craneberry, or Cranberry, has very plausibly been supposed to be derived from the crooked peduncle near the calix, which with the unexpanded flower sufficiently resembles a crane's bill, to justify the common name.

Cranberries are so well known in our northern and middle and even some southern states, as a favourite article of diet, that it may seem superfluous to enter minutely on a description of their proper-

ties. A belief, however, that, much as they are in demand, and greatly as they are esteemed, they are still entitled to a more extensive use as a salubrious dietetic article, as well as in application to medicine—renders it proper to be particular on these points. These berries are often brought to market when unripe, the cupidity of those who collect them thus depriving us of the delicious acid which is evolved by their maturation. The criterion of their maturity is their possessing a fine red colour, and having attained a large size, as in fig. 2 of the plate, and, though of a firm consistence, not being hard. The common mode of preparing these berries is confined to stewing them with sugar, until they have imbibed a sufficiency of the saccharine syrup to neutralize the slight degree of acerbity they possess, and make them palatably sweet. In this form they are cooling, slightly laxative, and promote digestion. But they might likewise be employed more extensively by making acidulous drinks, for persons labouring under febrile complaints. The expressed juice might be preserved by a sufficient quantity of alcohol to prevent fermentation, and set aside for summer use, to make a kind of lemonade. A rob might also be prepared, and advantageously used in diet and medicine. by evaporating the syrup obtained from them.

The berries are very acid, slightly astringent, and sub-acerb in their crude or uncooked state, but are grateful to most persons when prepared by culinary arts. The berries of almost all the species of *Vaccinium* are edible, and of these the *Vaccinium oxycoccus*, or European cranberry, and *V. myrtillus* or bilberry, are in greatest

repute in Europe. The latter has long been celebrated even by the poets of antiquity*—and it is probable we possess other indigenous species of the genus *oxycoccus* bearing esculent fruit. The *O. hispidulus* has been stated by some to bear berries deliciously sweet. All that is said of the European cranberry may with great propriety be said of the American species which greatly resembles it. Indeed, our berry seems to be preferable to it, because Withering remarks, that the “European cranberries are made into tarts and are much esteemed, but, on account of a peculiar flavour *are disliked by some.*” “They may be kept,” he continues, “for several years, if wiped clean, and then closely corked in dry bottles, or the bottles may be filled with water.” The American berry may, in all probability, be preserved in like manner.

Fig. 1. A specimen of the plant culled on the 10th of July, bearing both flowers and immature berries.

2. A ripe berry of the common form and colour ; they are sometimes quite globose or spherical, but often more oblong or oval than this figure.

(All the size of nature.)

* Virgil, in his Second Eclogue particularly, speaks of the *Vaccinium nigrum*.



Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Drawn from Nature by W. C. Barton

F. Kary, Sc.

CUPHEA VISCOSISSIMA.

TABLE XVIII.

CUPHEA VISCOCISSIMA.

CLAMMY CUPHEA.

Icosandria Digynia, Linn. *Salicariae*, Juss. *Calycanthemac*, Vent.

GENERIC CHARACTER.

Calix ventricose, tubular, 6 to 12-toothed, unequal. *Petals* six, generally unequal, inserted upon the calix. *Capsule* with the calix bursting longitudinally, 1-celled. *Seeds* few, lenticular, imbricated. *Brown*.

SPECIFIC CHARACTER.

Viscous; leaves opposite, petiolate, ovate-oblong; flowers dodecandrous, lateral, solitary, very shortly pedunculated. *Willd.* and *Pursh.*

SYNONYMS.

BALSAMONA Pinto, Vandell. fasc. t. 3.

LYTHRUM Cuphea, L. jun. supp. 249.

LYTHRUM petiolatum, Willd. Sp. Pl. 2. p. 867.

PLANT from ten to eighteen inches high. Root annual. Stem erect, cylindrical, branched, lake-red, covered with a fine, red, viscous, glandular pubescence. Branches axillary, numerous, also cylindrical and lake-red, and covered with a similar clammy investment

of glandular hairs. Leaves numerous, opposite, ovate-oblong, those on the stem about an inch or an inch and a quarter long, situated on pubescent petioles more than half an inch in length, and of a red colour. Those of the branches smaller, narrower, and supported by shorter petioles: all very entire, sub-acute, attenuated at base, smooth on both sides, and somewhat scabrous on the margin in the dried plant. Flowers solitary, and situated in the axills of each pair of leaves on the stem—lateral and terminal on the branches, and when terminal, crowded in clusters of three and four. Peduncles covered with red, viscous hairs, an eighth part of an inch long, inserted under the posterior gibbosity or projection of the base of the calix. Petals generally six, but very often only five in number, and unequal. The two superior ones the largest, ovate, acute; the lower ones linear; all wrinkled, small, of a brilliant red-purple colour, turning a deeper hue in drying. Calix tubulous, dentated at the mouth, slightly arcuate, at first cylindrical, afterwards urceolate, membranaceous, greenish-yellow on the under surface and striated, red above, streaked with darker striæ of the same hue, gibbous at the superior part of the base, and invested with a clammy, red pubescence; nectary a reflexed scale within the gibbosity of the calix. The calix becomes an inflated, urceolate, membranaceous, striated capsule, which when mature loses much of the red colour, and even assumes a yellowish or dull-white hue. This capsule by its maturation acquires an elasticity that causes it to burst laterally in a direction opposite to the white receptacle, which, thus denuded, exhibits from five to seven lenticular ash-coloured seeds marked longitudi-

nally by a white hilum, imbricately but vertically attached to it. The capsule bursts by a longitudinal opening, owing to the protrusion of the lengthened receptacle of unripe seeds, which come to maturity in the open air.

Grows in sandy fields, along the borders of sandy woods, and on the arenaceous margins of rivers, from Pennsylvania to Louisiana. Very abundant in Lancaster, Penn. where it covers whole fields. In the woods of Belmont, the seat of Judge Peters, in the neighbourhood of this city, it is found, but not abundantly. Also in fields south-east of, and near Gray's Ferry; and near Cooper's Ferry, Jersey, along the edges of ditches communicating with the Delaware. Flowers in June and until September. Not unfrequently found in blossom in October and even the beginning of November. At this time it is covered with the pappus of syngenesious plants that is caught and tenaciously held by the clammy hairs investing the whole plant except the leaves, which are quite naked on both sides. The hairs are capitated with glandular dots, which secrete this viscid fluid, for some occult purpose in the economy of the plant.

The genus *Cuphea* is tropical except the present plant, and contains but few species. The one under notice is common to this country and Brazil, where it grows in moist, shady ground. The extreme viscosity of its pubescence, has caused it to receive the specific name it bears; it is common to another species, which how-

ever is not a native of this country, this indeed being the only one found indigenous. The plant is not possessed of sufficient beauty to invite culture, except on account of its rarity, in places where it is not found wild. In the botanic gardens of England, however, it is thought worthy of cultivation; and is readily propagated from seeds obtained from Brazil. It improves in some degree in those places, but perhaps never attains a finer appearance than in very favourable and protected situations in this country. Such as enjoy a due degree of moisture, combined with a loose, sandy, but rich soil, are most likely to produce luxuriant specimens. Yet the petals never increase much in size, however vigorous the herbage may be. They are liable to variation merely in number, being quite as often only five as six, the number the generic character requires.

Fig. 1. About one-half of the main stem of a flowering specimen eighteen inches high, culled September 13.

2. A flower separated.
3. The capsule after it has bursted, exhibiting the seeds erectly attached to the filiform, lateral branches of a triquetrous cartilaginous receptacle.
4. A seed, separated.

(All the size of nature.)



Drawn from Nature by N.P.C. Barton.

F. Kearny. Sc.

SYMPHORIA RACEMOSA.

TABLE XIX.

SYMPHORIA RACEMOSA.

SNOW-BERRY BUSH.

Pentandria Monogynia, Linn.

Caprifolia, Juss.

GENERIC CHARACTER.

Calix small, 4-toothed, bracteolate at the base. *Corolla* tubular, short, 5-cleft, subequal. *Stigma* globose. *Berry* ovate, small, crowned with the persistent calix, 4-celled, 4-seeded, 2 of the cells sometimes abortive.

SPECIFIC CHARACTER.

Leaves glaucous, but destitute of pubescence on the costa and veins of the under side. Racemes long, lateral and terminal. Corolla bearded within. Berries large, opake and orange-coloured-white. B.

SYNONYM.

Xylosteum tartaricum, β . album. *Pursh*.

A BRANCHING, spreading shrub. Leaves opposite, on short petioles, oval, or elliptical, acute at apex and base, glaucous beneath, contorted, veined. Stem diffuse, cylindrical, yellowish-brown, very much branched. Branches somewhat serpentine. Flowers very nume-

rous, situate on lateral and terminal racemes, the receptacle of which becomes elongated as the fruit advances towards maturity. Calix very small, four-toothed, germ ovate. Corolla peach-blossomed, diluted with spots of white, campanulate-tubular, deeply cleft into five lanceolate, acute segments, bearded or tufted with hairs within. Stamens included. Anthers oblong. Filaments tufted with delicate hairs. Pistil simple, shorter than stamens. Stigma small, orbicular. Berries the size of common black cherries, opaque, orange-coloured-white, crowned with the persistent calix. Seeds white, two in each mature berry, about the size of a barley corn, elliptical, convex above, concave and compressed on the under side, on which the hilum is indistinctly visible. One raceme will often contain flowers, enlarged germs, and even small berries, at the same time; and clusters of the mature and smaller berries are found in great abundance on the lower or primary branches of the shrub, while the upper are putting forth flower-buds and flowers.

Inhabits the banks of Missouri. *M. Lewis*. Grows also in Upper Canada, not far from Queenstown, on the Niagara river, and near the outlet of Lake Huron, not rare. *Nuttall*. Flowers in July and August.

This plant belongs to a genus confined to North America, and which contains only two species. It bears a close resemblance, when in flower, to the other species, *S. glomerata*, which has smaller and

purple berries. Both have elliptical, opposite leaves. The flowers of *glomerata*, however, are white, and much smaller; are conglomerated, and always axillary.

Snow-berry is a very ornamental shrub, particularly because it bears flowers and fruit at the same time, which continue successively expanding and ripening during the whole summer; and when finally the large bunches of ivory or wax-like berries are matured in the autumn, the shrub has a very beautiful appearance in borders. It is hardy, grows luxuriantly without much care, and needs no further protection from the inclemency of winter, than that usually afforded in gardens to all valuable shrubs. The late Governor Lewis first brought to this city seeds of the snow-berry bush, which were planted in the botanic garden of the late Mr. M'Mahon, where they flourished and increased. Thence the plant has been disseminated in the neighbouring gardens; and though not yet common, it is greatly valued by those who cultivate it. The berries, particularly, are much admired. The specimens from which the drawing was made, were furnished by Messrs. Landreth, from their gardens, in which both this species and the other, *S. glomerata*, grow abundantly and luxuriantly.

Fig. 1. Represents the terminal portion of a flowering branch, culled on the 21st of July.

2. A flower, separated.

3. A stamen.

(All the size of nature.)

4. A stamen, magnified.

5. Pistil, natural size.

6. A terminal twig, culled on September 5, bearing mature berries, and some immature, as well as a number which may be considered abortive—the size of nature.



Fig. 2.



Fig. 1.

Drawn from Nature by W.C.P. Barton.

Engraved by T. T. T. T.

SCHIZAEA POSILLA

GRATIOLA AUREA

TABLE XX.—FIG. 1.

GRATIOLA AUREA.

GOLDEN PERT. GOLDEN-FLOWERED HEDGE-HYSSOP.

Diandria Monogynia, Linn.

Scrophulariae, Juss.

GENERIC CHARACTER.

Calix 5-parted, often bi-bracteate at the base. *Corolla* tubulous, resupinate, and sub-bi-labiate; the *upper* lip, 2-lobed or emarginate; the lower 3-cleft and equal. *Filaments* 4—2 fertile, the others for the most part sterile. *Stigma*, 2-lobed, or bi-labiate. *Capsule* ovate, 2-celled, 2-valved, many-seeded. Dissepiment contrary to the valves.

SPECIFIC CHARACTER.

Smooth; radical portion of the stem terete, and marked by two strong furrows, upper portion obscurely quadrangular; leaves opposite, broad-linear, indistinctly 3-nerved, closely sessile, acutely but obscurely serrated towards the apex, dotted. Calicine segments linear, nearly equal. Destitute of abortive filaments. B.

SYNONYMS.

GRATIOLA Caroliniensis, Pers. ench. 1. p. 14.

GRATIOLA officinalis, Mich. Fl. Boreali-Am.

PLANT from a span to fourteen inches high. Stem towards the root procumbent and radicaing, terete, jointed, assurgent from the base, slightly quadrangular above, marked with two furrows. Root perennial, fibrous, creeping under ground. Leaves somewhat thick, grass-green, opposite, about one inch long, and less than two-eighths broad, closely sessile, dilated at base, acute, and marked with about two, seldom three acute serratures on either margin, near the apex, dotted under a lens with glandular pits, and three-nerved. The nerves are indistinct to the naked eye. Peduncles scarcely the length of the longest leaves, slender, pubescent, (not villous, as Pursh describes them.) Flowers solitary, alternate for the most part, but in very luxuriant specimens, sometimes opposite, seldom more than two expanded at a time on the same plant, and often only one. Leaves of the calix nearly equal in length, linear and acute. Bracts longer than the calicine leaves. Corolla gamboge-yellow. Tube hairy, oblique, ventricose in the middle; upper lip roundish and notched, the lower equally trifid, segments oblong, the intermediate one notched at the apex. Throat of the corolla tube hairy within. Filaments two, the length of the tube. Style longer than the stamens and persistent. Stigma funnel-shape, oblique. Capsule ovate, scarcely as long as the calix. Seeds small, numerous.

Inhabits wet sandy places, the margins of ditches and rivulets

from New England to Georgia; common in New Jersey; flowering from July to September. The time of flowering in the southern states, is from April to June, according to Mr. Elliot; in New Jersey it blooms from July to August; and in the New England states from August to September.

The genus *gratiola* was founded on the *G. officinalis* as a type; and that plant was called by the ancient writers on botany and medicine, *gratia Dei*, the favour of God, because it was believed to possess very eminent virtues. *Gratiola* being a diminutive of *gratia*, was imposed on the genus, which is nearly equally divided between India and North America. It consists of twenty-two species, eight of which are indigenous to the United States, growing principally in the southern section of the union. The present species received its specific name from Muhlenburg. It is peculiar to this country, and so nearly resembles the *G. officinalis* of Europe, as to have been mistaken for it by Michaux. Notwithstanding its affinity, however, it is truly separable from that species. Like the *officinalis*, it is a variable plant; and it is very likely that Michaux met with some of the luxuriant specimens which grow in the southern states; in which case, his mistake was natural; for though the northern *gratiola* could not be confounded with the *officinalis*, yet the southern plant described by Mr. Elliot as having ovate-lanceolate leaves, and attaining a height of two feet, and consequently having larger flowers

than our plate exhibits, and being altogether more robust than the plant it is intended to represent, comes so near officinalis, that it might almost be doubted whether it is more than a variety produced by a difference of climate. Indeed, the northern plant, which frequently, and in fact most commonly, is half the size of the figure, would appear to be almost distinct from the plant described by Mr. Elliot.

Different specimens of *gratiola officinalis* in my herbarium, sent me by Professor Mertens of Bremen, as growing wild near that city, compared with specimens received from Copenhagen, and also with good figures of the plant, exhibit considerable variation in leaves, flowers, and bracts: one of these specimens, compared with a luxuriant *gratiola aurea*, shows the latter to be strikingly allied to it. This affinity would seem to indicate a resemblance in medicable virtue; if this should be the case, the *G. aurea* will be a valuable plant, for the *G. officinalis* is deservedly commended as a powerful article of the *materia medica*. It is one of the plants conjectured to yield the celebrated tincture called *Eau medicinale*; but this opinion is contradicted by the proprietor of the secret.

The variableness of *G. aurea* is remarkable in its size and general habit. Specimens will often be found scarcely two inches high, in flower, and the stem often *appears* quite quadrangular, though on a

nearer inspection, it will be found to be roundish, with prominent ridges, giving it the four-sided appearance described by Pursh as a character of the plant.

Table XX. Fig. 1. Represents the plant of its natural and full size, cut from the root at the mark. (*)

TABLE XX.—FIG. 2.

SCHIZÆA PUSILLA.

LEAST FERN.

Cryptogamia Filices, Linn.

Filices, Juss.

GENERIC CHARACTER.

Spikes unilateral, flabellate, aggregate. *Capsules* radically striated at the summit, sub-turbinate, partly opening by an oblong, lateral pore. *Indusium* continuous, formed from the inflected margin of the spikes.

SPECIFIC CHARACTER.

Fronde very simple, linear, compressed; spikes conglomerated, inflexed, secund.
Pursh.

FROM two to four and a half inches high. Root densely fibrous, umber-brown. Barren fronds numerous, sixteenth part of an inch broad, compressed, obtuse, contorted. Fertile fronds fewer, radical, simple, the breadth of the barren, divaricating from the root, very much compressed, of a leek-green colour, two-thirds of their length, honey-yellow above. Spikes arcuate, leaning to one side, fan-shaped, of a honey-yellow colour.

The genus *Schizæa* was established by Dr. James Edward Smith. The term is derived from the Greek, $\sigma\chi\iota\zeta\omega$, to cleave asunder, in allusion to the cloven appearance of its aggregate fan-like spikes. The genus, which is very distinct and well-marked, contains about ten species, of which number one inhabits Cape of Good Hope, one Cape Van Diemen, one South America, two New South Wales, one Ceylon and Tranquebar, one East Indies, one Society Isles, one the Island of Trinidad, and the tenth the state of New Jersey, in North America—the plant here figured.

This delicate little Fern was first detected by Dr. Eddy of New York. It is exceedingly rare, never having been found any where in the United States, but at one spot, near Quaker-Bridge, Burlington county, New Jersey. Its minuteness, together with its rarity, render it difficult to be detected even when in pursuit of it in the place where it grows.

Table XX, fig. 2. Represents a large specimen of the plant in flower, its natural size.

TABLE XXI.

SCUTELLARIA LATERIFLORA.

SIDE-FLOWERING SCULL-CAP. SCULL-CAP. BLUE SCULL-CAP.

Mad-dog Scull-cap. Mad-dog-weed, &c.

(*Generic Character, &c. &c. page 5 of this work.*)

SPECIFIC CHARACTER.

Plant much branched, somewhat smooth. Leaves long-petiolate, ovate, dentate, those of the stem sub-cordate. Racemes lateral, leafy. *Willd.*

PLANT from one to three feet high. Root perennial, fibrous, ochreyellow. Stem quadrangular, smooth, branched, greenish-yellow, purplish near the root. Branches also quadrangular, opposite, axillary, decussating, floriferous, and leafy. Leaves petiolate, acute, opposite, arising from the alternate sides of the stem. Those of the stem large, varying from one to three and a half inches in length; and



Drawn from Nature by W.P. Bartou

Engraved by C. H. Shreve

SCUTELLARIA LATERIFLORA.



from three quarters of an inch to an inch and three quarters breadth, ovate-lanceolate, and cordate or semi-cordate at base; dentated, and somewhat wrinkled. Branch-leaves smaller; ovate-lanceolate, ovate, and often quite lanceolate, and dentate-serrate. All the leaves are of a pale or celandine-green beneath, and of a grass-green hue above, occasionally tinged on their upper disk, with reddish-purple. Racemes long, leafy, proceeding laterally from the stem—hence the specific name of the plant. The floral leaves are attached by pairs to each pair of flowers, and diminish gradually in size as they approach the apex of the racemes. They are ovate, acute, sub-sessile, or situated on very short petioles. Each floral leaf of the pair, is attached by a common origin to the peduncle of the calix as represented in fig. 2. of the plate. Flowers small, numerous, arranged in pairs along the racemes. Peduncles an eighth of an inch long. Calix scutellate as in the whole genus. Corolla monopetalous, tubular, from a quarter to three-eighths of an inch long, and one-eighth of an inch or little more, in diameter; campanula-purple, occasionally lighter or nearly bluish-white beneath. Seeds numerous, small, oval, verrucose, yellowish. Though the flowers of this plant are generally borne on racemes, they are sometimes arranged in pairs from the axills of the leaves, on the branches. In this case, the floriferous ramuli must be considered as racemous branches. The large size of the leaves belongs to plants which have grown in the shade, and, thus situated, they become very thin

and nearly membranaceous. The branch-leaves are generally in the proportion of one-half the size of those of the stem, partaking of their variation in size, and becoming, like those of the stem, semi-membranaceous in the shade. In exposed situations all the leaves are strongly veined and somewhat wrinkled. This indeed is an invariable character when the plant has enjoyed its natural or favourite situations; any variation from it, as observable in the tall, debile specimens obtained from dark-shaded places, being caused by the influence of an uncongenial soil, and constant protection from the sun. The proper juice of this plant is not uncommonly of a red colour: hence the point of origin of the branches from the stem, the petioles, and under sides of the leaves, and other parts of the herbage, are often tinged with this hue.

Grows in damp places—in meadows, along the edges of pools, the margins of ditches, rivulets, and the borders of larger waters, from Canada to Carolina—very common. Flowers from July to September.

This is the second species of the genus *scutellaria* described in this work, and to the chapter on the first, *S. hyssopifolia*, reference is made for an account of the genus. The present species has obtained a notoriety which seldom falls to the lot of a plant so undeserving of any esteem. It has been long held up to the public as possessing

the power of preventing and curing hydrophobia. Nothing, however, could be more vain or illusory than the expectation of accomplishing by it either of these desirable objects, and considered in reference to these ends, it is utterly worthless. For the reasons which justify this assertion, the reader is referred to my essay on this subject published in the February number of the Philadelphia Journal of the Medical and Physical Sciences. By the facts there stated, it will appear, that the boasted prophylactic and curative virtues of this plant, in relation to the violent disease of hydrophobia, had their origin many years ago, in charlatanical practice. And notwithstanding the strenuous efforts which have been made to win professional confidence in its reputation, very few educated physicians have been seduced into so dangerous a delusion. Indeed, only two physicians, well known to the members of the profession as being highly respectable, have published any thing of importance in favour of the plant. One of these, the author of a pamphlet published in New York in October, 1819, containing such an exposition of the subject, as justified the opinion, that he himself believed in its reputed virtues, has, since its publication, declared, peremptorily, his entire disbelief in its preventive or curative efficacy. Hence his publication is nugatory. The other, a respectable compiler of a dispensatory, has, unfortunately for the interests of medicine, and inconsistently with his professional standing, afforded the authority of his name and credence, to the preposterous story. It cannot be doubted, how-

ever, that future and more deliberate consideration of the subject, will convince him of the medicinal immerit of the plant, and induce him, with true professional candour, to publish a renouncement of any confidence in its powers, and a recantation of such of his publications, as are calculated, by sustaining its reputation, to produce mischievous and dangerous effects.

Fig. 1. Represents the plant, of its natural size, in flower.

2. A flower separated, with a floral leaf attached—as large a size as they ever attain.



Fig. 1

Fig. 2 3 4 5

6

Described from the original in the Herbarium of the University of Cambridge

Prepared by C. DeBour

THE UNIVERSITY OF CAMBRIDGE

TABLE XXII.

CLEOME DODECANDRA.

THREE-LEAVED CLEOME. CLAMMY CLEOME. FALSE MUSTARD.

Tetradynamia Siliquosa, Linn.

Capparides, Juss. and Vent.

GENERIC CHARACTER.

Nectariferous glands 3, one under each of the three upper calix-leaves, the lower one without a gland. *Calix* 4-leaved, small and deciduous. *Petals* 4, all ascending to one side. *Capsule* siliquose, stipitate, 1-celled, 2-valved.

SPECIFIC CHARACTER.

Viscidly pubescent. Flowers dodecandrous; leaves ternate, elliptical; flowers axillary, solitary. B.

PLANT fetid, annual, from a span to fifteen inches high, all over viscidly pubescent. Siliques, also pubescent and clammy. Leaves all ternate, elliptical or lanceolate-elliptical, the intermediate one larger than the other two; pubescent, rather obtuse, becoming smaller as

they approach the top of the plant. Flowers axillary, solitary, situated on long, filiform, red peduncles. Petals often only three, heart-shaped, white, supported by a filiform claw an eighth of an inch long; calix leaves four; two of them lanceolate-linear, acute, lake-red; a third ovate and lake-red; and the fourth larger, oblique, petaloid, three-toothed, channelled, one-half white, the other rose-coloured. Stamens lake-red, generally twelve in number. Germ large, yellow; pistil filiform, rose-coloured. Silique sessile on the peduncle, yellowish-green, membranaceous and reticulated, obtuse, clammy, pubescent, slightly corrugated towards apex and base. Seeds numerous, small, round, flattened, brownish. Delights in sandy soil on the margins of rivers. Grows from the northern to the southern section of the Union. "Common on the sandy shores of Lake Erie, near Buffalo creek, also along the margins of the Mississippi and the Missouri." *Nuttall*. I have found it at the base of the Chickisalunga rocks on the Susquehanna river, two miles above the town of Columbia, growing on the sandy beach. Flowers in July. In its natural situations it is quite pubescent, but becomes larger and nearly glabrous by cultivation. It is possessed of medicinal properties, being like most of the species of the genus, actively deleterious.

The generic term *Cleome* is derived from the Greek word *κλειω*, claudio, and was adopted by Linnæus from Theod. Priscianus, or Octavianus Prisianus, a medical writer of the fourth century. It contains three North American and twenty-one foreign species. They

are nearly all plants of offensive smell; a circumstance which indicates in general a deleterious or narcotic power. The species here noticed, is said by Schoepf and the late Professor Barton, to be a good anthelmintic. For further information on this point, the reader is referred to the third volume of my Vegetable *Materia Medica* of the United States.

Fig. 1. The upper portion of the plant in flower and fruit.

2. A complete flower, separated.
3. A petal.
4. The petaloid calicine leaf.
5. The calix, germ and pistil, divested of the petaloid segment.
6. The calix, with stamens.

(All the size of nature.)

TABLE XXIII.

SOLANUM CAROLINENSE.

CAROLINA NIGHTSHADE. HORSE-NETTLE.

Pentandria Monogynia.

Solaneae, Juss.

GENERIC CHARACTER.

Calix 5-cleft, persistent. *Corolla* rotate, or campanulate, 5-lobed, plaited. *Anthers* partly united, emitting the pollen by two pores at the point. *Berry* 2-celled, many-seeded.

SPECIFIC CHARACTER.

Stem prickly, annual ; leaves hastate-angular, armed on both sides with prickles, racemes loose. *Willd.*



Drawn from Nature by WPC Barton

SOLANUM CAROLINENSE

Engraved by J. Fairall

PLANT from one foot to two feet high. Stem herbaceous, rigid, branched. Branches spreading. Stem and branches armed with sharp prickles and densely beset with stellated hairs. Leaves large, ovate-sinuated, or ovate-lanceolate, entire at base, deeply sinuated—the angles somewhat acute; scabrous, covered all over with the same dense stellated hairiness which covers the whole plant, but hardly tomentose. The veins and costa armed with prickles. Racemes loose, simple, lateral and terminal, from four to eight-flowered. Calix closely beset with fine hairs, and prickly. Corolla expanding as common in the genus, pale-blue—blue variegated with blotches of white,—or wholly of a faded-white colour. Stamens and pistil of a golden-yellow hue. Berries the size of large May-duke cherries, ochre-yellow, and frequently persistent during winter. Flowers from May until August. Grows in cultivated grounds from Canada to Georgia, appearing to prefer sandy soil, near road sides and rubbish in the vicinity of habitations. Very common. Annual or perennial?

The genus *Solanum* is one of those very ancient assemblages of plants, designated by terms, the origin of which is either enveloped in obscurity, or lost in the antiquity of their use. It comprises plants very naturally grouped together, by striking botanical affinities. The American species are but six or seven, of which the one here figured, is perhaps the most common. It is, indeed, except the *S. nigrum*, the only indigenous species found in the middle and northern states,

but is more common to the south, where the other species also grow. The foreign species are seventy-seven in number. It is yet doubtful whether the present one be annual, as it is commonly said to be by botanists, or perennial.

The Figure represents a branch of the plant in flower, with incipient fruit—of the natural size.



Drawn for Nature by W. G. Johnston.

J. Boyd del.

RUDBECKIA TRILoba

TABLE XXIV.

RUDBECKIA TRILOBA.

THREE-LOBE-LEAVED RUDBECKIA.

(*Generic Character, &c. &c. see page 17 of this work.*)

SPECIFIC CHARACTER.

Hispidly-hairy ; stem paniculated, branches divaricate, many-flowered, leafy ; leaves lanceolate, acuminate at both ends, serrate, the lower ones three-lobed ; calicine leaflets linear, deflexed, as long as the rays. *Willd. and Pursh.*

PLANT from three to five feet high. Root perennial or biennial? Stem cylindrical, furrowed, reddish, closely beset with white hairs. Branches dull-lake-red, hairy. Lower leaves three-lobed, the lobes lanceolate, acuminate, serrate, obscurely three-nerved, hairy, ciliated, particularly towards the base ; hairs and ciliæ white. Upper leaves simple, lanceolate, acuminate, irregularly serrate, indistinct-

ly three-nerved, hairy on each side, and ciliated on the margin, the ciliæ longest towards the base. Stem and branches cylindrical, finely lined, generally greenish on one side and purplish-red on the other, or entirely dull-lake-red. Flowers small. Calicine leaves linear, nearly or often quite as long as the rays, acuminate, and hairy. Rays emarginate, lanceolate, elliptical, gamboge-yellow. Disk auricula-purple. Scales of the receptacle awned. Flowers in August and September. "In the mountains of Virginia and Carolina." *Pursh.* "In the New England states." *Eaton.*

Another species of the beautiful autumnal genus *Rudbeckia*, already fully described in preceding pages, is here figured. It is rare in Pennsylvania, though sufficiently common to the south and westward of this state. The flowers of this, are smaller than those of the other species, none being found much larger than the drawing represents. For the specimens from which it was made, I am indebted to Mr. Nuttall, who raised plants of it last summer in this city.

The plate represents an upper portion with one of the three-lobed leaves, in its natural situation—the size of nature.



Drawn from Nature by W.P.C. Barton

Fig. 1. 10

NICOTIANA RUSTICA.

TABLE XXV.

NICOTIANA RUSTICA.

YELLOW-FLOWERED TOBACCO. COMMON GREEN TOBACCO.

Pentandria Monogynia, Linn.

Solaneae, Juss.

GENERIC CHARACTER.

Calix urceolate, 5-cleft. *Corolla* funnel-form, border plaited, 5-cleft. *Stamina* inclined. *Capsule* 2 to 4-valved, 2-celled.

SPECIFIC CHARACTER.

Leaves petiolate, ovate, quite entire. Flowers obtuse. *Willd.*

SYNONYMS.

HYOSCYAMUS niger, Matth. Valqr. v. 2. 412.

H. luteus, Germ. em. 356.

A HARDY plant. Root annual. Stem from three to four feet high, with paniced branches, roundish, yellow-green, invested with a soft semi-viscous pubescence, particularly above; the hairs of the pubescence capitated by secreting glands. Leaves from three to six inches long, broad-ovate, somewhat cordate; upper ones lanceolate-ovate—all entire, but undulate and irregular on the margin, pubescent, of a

dull yellowish-green colour, covered with the same kind of soft semi-viscous pubescence as the stem, and situated on petioles from one to two inches long. Mid-rib conspicuously yellow, veins strongly marked. Flowers axillary and terminal, numerous, about an inch long. Calix consisting of five segments, unequal in length; two smaller than the other three: and of the latter one much larger than the other two—all ovate, sub-acute, pubescent. Corolla sulphur-yellow, tube and under surface of the limb pubescent—limb expanding and glabrous. Tube bell-shaped, segments rounded. Stamens sulphur-yellow, tipped with triangular grey anthers. Base of the filament bearded with fine fringe. Germ ovate, glabrous. Style as long as the stamens. Stigma globose. Capsule roundish, a little depressed. Seeds small, nearly black, numerous. Every part of the plant, as well as the stem and leaves, downy, clammy, and exhaling the same peculiar unpleasant smell common to the genus. “Naturalized near the borders of some of the smaller lakes in the western parts of the state of New York.” *Nuttall.* Flowering in July.

The genus which furnishes the narcotic luxury so universally used in many parts of the world, consists of thirteen species, and bears a name in honour of John Nicot, of Nismes, an ambassador from the French court to that of Portugal. During his residence in Lisbon in 1560, he received some seeds of the plant now known by the name of Virginia tobacco, from a Dutchman, who had obtained them from Florida about the same time the Spaniards received it from

Tobaco, a province of Yucatan, which has given the common name. They were distributed from this source, throughout Europe, and hence the introduction of Tobacco as an article of luxury. The present species furnishes the common tobacco, or common-green tobacco, and the seeds of it are supposed to have been received in Europe from America, about the same time that those of *N. tabacum*, or Virginia tobacco, were sent. America has been referred to as the native country of the tobacco, by most writers; but Savary declares that the Persians received it from Egypt four hundred years ago, and have during all this time cultivated it. Whatever be the truth of this obscure question, there can be no doubt that the present species, as well as the *N. tabacum*, has long been naturalized in this country; and hence it becomes proper to figure it in a Flora of North America.

Fig. 1. A specimen in flower of *N. rustica*.

2. A flower, separated.

3. A stamen.

4. Calix, germ, and pistil.

(All the size of nature.)

TABLE XXVI.

HELENIUM AUTUMNALE.

AMERICAN SNEEZE-WORT. SNEEZE-WEED.

Syngenesia superflua, Linn.

Corymbiferae, Juss.

GENERIC CHARACTER.

Calix simple, many-parted. *Rays* of the flower semi-trifid. *Receptacle* naked, globose; the rays only paleaceous. *Seed* villous. *Pappus* paleaceous, about 5-leaved, leaflets awned.

SPECIFIC CHARACTER.

Leaves lanceolate, serrate, sub-decurrent; stem corymbose above; disk florets 5-cleft; rays flat, reflexed. *Willd. and Pursh.*

WHOLE plant, particularly stem, branches, and peduncles, covered with a very dense, short, almost imperceptible pubescence, which gives the whitish-green appearance to it. Stem from five to seven feet high, many growing from the same root. Root perennial, fibrous. Stem erect, angular, somewhat winged from the decurrent margins of the leaves, much branched above; branches also angular. Leaves opaque, lanceolate, dotted with innumerable fine pits,



Drawn from Nature by H. C. Boissot

Painted by J. D. Smith

HELIANTHUS AUTUMNALIS

serrate, acute, and often acuminate, serratures irregular. Costa and veins conspicuous, pistachio-green above, siskin-green underneath. Flowers varying in size, numerous, terminal and axillary, some very large, an inch and three-quarters in diameter, including rays, others an inch, and some only three-quarters of an inch. Peduncles swelling as they approach the base of the calix. Ray-petals gamboge-yellow, about sixteen or seventeen in number, sometimes twenty, three or four-toothed; teeth obtuse, sometimes deeply cleft and acute. Calix segments linear, numerous. Disk hemispherical, greenish-yellow. Inhabits the margins of rivers and smaller waters from Canada to Georgia. Flowering in September—common.

The genus *Helenium* belongs to N. America, and received this name from Linnæus after he had referred the original *Helenium* to *Inula*. Dioscorides describes *Ελεγιον*, which professor Martyn informs us was called in honour of Helen, consort of Menelaus, who cultivated a plant, according to Hesychius, which destroyed serpents; according to other ancient writers, "*it sprung from her tears.*" That the ancient plant alluded to, and of which this history is related, is *Inula helenium*, or common Elecampane, seems to be acknowledged by all modern writers. The strong resemblance between the genus of which a species is here figured, and that of Elecampane, induced Linnæus to call it *Helenium*. In the *Hortus Cliffortianus* where he first described it, he called it *Helenia*, and this termination Gaertner has retained. In the *Species Plantarum* and other

works of Linnæus, however, the purer termination of *Helenium* is adopted. The species are only three in number, of which the present is the most common throughout the United States. The whole plant is intensely bitter, and possesses besides its bitterness, other medicinal properties which will be particularly detailed in another work.

The Figure represents a flowering specimen, the size of nature.



Drawn from Nature by W.P. Charter

Engraved by T. Johnson

RHEXIA MARIANA

TABLE XXVII.

RHEXIA MARIANA.

MARYLAND RHEXIA.

(*Generic Character, &c. &c. see page 13 of this work.*)

SPECIFIC CHARACTER.

Hirsute; leaves lanceolate, acute at each end, 3-nerved; calix tubular, nearly glabrous. *Mich.*

A PERENNIAL plant, from one to two feet high; stem erect, sub-terete, hirsute, channelled. Leaves ovate, lanceolate, serrate, ciliate. Flowers situated in the fork and termination of the branches. Calix urceolate, purplish, slightly hirsute with stellated hairs, persistent, including the capsule. Segments long, reflexed. Petals fugacious, irregularly ovate, or oval, hairy externally, peach-blossom red, or white dilated with rose-red. Filaments as in *R. Virginica*, inserted into the rim of the calix. Anthers yellow, long, slightly arcuate, opening above. Style larger than the stamens. Seeds numerous, attached umbilically to a central receptacle. Grows in

damp grassy meadows, and near boggy grounds and small waters. Common in New Jersey. Grows also in Carolina and Maryland. Flowers in July and August.

This is the second species of the genus *Rhexia* described in this work. It is less common in this state than the *R. Virginica*, but grows abundantly in the southern section of the union, delighting in the same kind of situations as that species is found to inhabit. From the fugaciousness of the petals, it does not seem to be much entitled to cultivation.

The Figure represents a flowering specimen of the plant of its natural size.

Fig. 1.



Painted by W. C. Barton

Engraved by C. T. Druce

SESBANIA MACROCARPA

TABLE XXVIII.

SESBANIA MACROCARPA.

Diadelphia decandria, Linn.

Leguminosae, Juss.

GENERIC CHARACTER.

Calix 5-toothed. *Legume* elongated, (terete, linear,) bi-valved, divided into many cells by transverse dissepiments. *R. Brown.*

SPECIFIC CHARACTER.

Glaucous ; leaves oblong-elliptical, sub-cuspidated, margin naked ; legume very long, narrow, maculated, and pitted by longitudinal depressions. *B.*

PLANT from three to five feet high, erect, every where glaucous. Root annual. Stem cylindrical, bluish-green, inclining to greenish-purple. Leaves larger than in *Æschynomene*, consisting of many pairs of oblong, elliptical, obtuse leaflets, terminated by a short point, and very glaucous beneath. Common petioles terete, swelling at base.

Stipules in pairs, lanceolate, or hastate, membranaceous, yellow-green. Racemes axillary, shorter than the leaves, from two to four-flowered. Flowers primrose-yellow—rarely expanded more than represented in the plate. Vexillum gall-stone-yellow inside, outside primrose-yellow. Carina orange-yellow, striped with carmine-red. Wings orange-yellow, striped with purple. Legume from seven to eight inches long, less than two-eighths of an inch broad, slightly arcuate, stipitate, mucronate, compressed, maculated, and pitted by longitudinal depressions; invested within by a straw-yellow, shining, membranaceous lining, and divided transversely by about thirty-nine partitions. Seeds thirty-nine or forty, kidney-shaped, umber-brown, an eighth of an inch long and somewhat less in breadth, pitted on either side by a deep depression. Hilum white. Flowers in August, and continues in bloom about six weeks or two months. Grows in the neighbourhood of St. Louis and New Orleans. The drawing was taken from a vigorous living plant raised by Messrs. Landreth last summer from seeds furnished by Mr. Nuttall, and it has been carefully compared with several fine dried specimens received from New Orleans.

Pursh, very properly objecting to the inadmissible generic name *Sesban*, substituted that of *Sesbania*, which, though still faulty, is rather better than the first, given by Poiret to a genus selected by him out of *Æschynomene*. That botanist referred the Linnæan *Æ. grandiflora*, *coccinea*, and *Sesban*, to this newly-formed genus, but it has since

been augmented by two or three North American species, of which one is now figured. It is a tropical genus of ten species, indigenous to India and America, and one to Egypt.

Fig. 1. Represents a flowering portion of the plant.

2. A flower, artificially opened, to show its structure.

3. Inside of vexillum.

4. Carina.

5. Wings.

6. Stamens.

7. Calix and pistil.

8. Stipule.

TABLE XXIX.

ÆSCHYNOMENE HISPIDA.

FALSE-SENSITIVE-PLANT.

Diadelphia decandria, Linn.

Leguminosae, Juss.

GENERIC CHARACTER.

Stamina divided into 2 equal bodies. *Brown*. *Loment* exserted, compressed, one of the sutures straight, the other lobed; articulations truncated, 1-seeded. *Calix* bilabiate, labia dentate.

SPECIFIC CHARACTER.

Stem erect; petioles and stem tuberculate-hispid; leaves in many pairs; leaflets linear, obtuse; stipules membranaceous, semi-sagittate; racemes simple, few-flowered; loment hispid. *Willd.* Sp. Pl. 3. p. 1163.

SYNONYM.

HEDYSARUM Virginicum. *Willd.* Sp. Pl. 3. p. 1212.

AN annual plant, from three to five feet in height. Root fibrous, bundled. Stem erect, cylindrical, apple-green or yellow, beset with



Fig. 1.

Fig. 2. Fig. 3.

Mimosa from Mexico, by W.P.C. Bartram

MIMOSACEAE MIMOSA

Engraving by J. Smith

green, reddish and black glandular-like tubercles, from each of which a hair arises, capitated by a viscous crown, emitting a terebinthinate odour. Leaves consisting of many pairs of linear and oval-linear, obtuse, very smooth leaflets, of an apple-green colour, supported by very short stalks, on a hispid petiole. They are very numerous, often thirty-nine, forty-nine, and fifty-one. Stipules ovate, acuminate, with a decurrent base. Flowers about three or five, borne in simple racemes, garnished with a leaf or two. Peduncles hispid and glandular, zig-zag. Loment stipitate, arcuate, somewhat compressed, but showing the elevation produced by the seeds and the depressions by the dissepiments conspicuously, making from six to nine joints; hispid-scabrous, the tubercles being large, red, and prominent. Corolla gamboge-yellow, reticulately veined with carmine-red. Grows along the margins of rivers subject to the overflowing of the tides, and on the islands of most of our large tide-water rivers, from Pennsylvania to Carolina. July, August.

The greek word *αἰσχυνομαι*, to be ashamed, has given origin to the generic name *Æschynomene*, because the plants of that genus are somewhat sensitive, and shrink from the touch. It is a tropical genus, containing thirteen species, native to India and America. The North American species are only two, both of which are rare. The one here figured is a scarce plant even in those places where it is indigenous. Along the shores of the Delaware, near Philadelphia, where it grows naturally, but three or four specimens can be found in a

season after a very careful search. The flowers are rarely more expanded than represented in the plate, but when they do open more completely, or when displayed by art, are very handsome, being of a rich yellow, delicately veined by reticulated lines of carmine-red. Its root is annual, but has so much the sturdy appearance of a perennial, that its character might be mistaken.

Fig. 1. An upper portion of the plant, in flower.



Drawn from Nature by W.T.C. Barton.

ANDROMEDA ARBOREA.

Engraved by C. Tiebout.

TABLE XXX.

ANDROMEDA ARBOREA.

SORREL-TREE. SOUR-WOOD.

Decandria monogynia, Linn.

Ericae, Juss.

GENERIC CHARACTER.

Calix 5-parted, minute, inferior. *Corolla* more or less ovate, or sub-cylindric, smooth; border 5-cleft, reflected. *Capsule* 5-celled, 5-valved; valve producing dissepiments from the middle, margin naked.

SPECIFIC CHARACTER.

Branches terete; leaves oblong, acuminate; mucronate-serrulate, smooth; panicles terminal, many-spiked; corollas ovoid-cylindrical, pubescent; anthers linear, unawned. *Willd.*

A TREE, from twenty to fifty,* or sixty feet† in height. Trunk from six to twelve and fifteen inches in diameter, covered with a thick and furrowed bark. Branches terete; bark of the annual twigs of a

* "I have no where seen the Sorrel Tree of ampler dimensions than in the fertile vallies at the foot of the lofty mountains of North Carolina, particularly in those whose waters unite in the northern branch of the river Catabaw, about thirty miles from Morgantown, and three hundred miles from Charleston. In these vallies I have measured Sorrel Trees which were fifty feet high, and twelve or fifteen inches in diameter." *Mich. North American Sylva.*

† *Mich. Fl. Boreali-Am. and Elliot.*

reddish colour ; vernal shoots green. Furrows deep. Leaves petioled, numerous, crowded, from three to five inches long, and from one to two inches broad ; alternate, oval-acuminate, generally serrulated with sharp, pointed serrulations, although many of the leaves are found entire on the margin. They are slightly downy when they first appear ; but, after attaining maturity, become glabrous and shining on the upper disk, reticulately veined, and destitute of pubescence on the under surface except the costa, which is frequently garnished with white, scattered hairs. They are very acid and agreeable to the taste when chewed. Petioles an half or three-quarters of an inch long. Flowers numerous, small, pedicellated, secund, borne on numerous, large, terminal, divergent, many-spiked panicles, five inches long. Calix small, five-toothed ; teeth acute. Corolla ovate, opening at the mouth, monopetalous, pubescent. Stamen and pistil included. Anthers linear, unawned. Style pentangular, persistent. Capsules small, ovate, reddish-brown, containing numerous, minute, subulate seeds, garnished with membranaceous points, and longitudinally imbricated in the capsule. Most common in the western and southern section of our states, growing on the margins of streams and swamps, and flowering in June and July. According to Michaux, f. " it begins to appear on the Alleghany mountains in Virginia, and is found to their termination in Georgia." It is not uncommon in the southern states, being found on the steep banks of the rivers that flow from the mountains ; but it becomes more rare in following them from their source, whether east-

ward or westward, and ceases entirely in the maritime parts of the Carolinas and Georgia. Mr. Elliot says, "it is found as low down as St. John's, Santee, within forty miles of the ocean."*

This is the only arborescent species of the genus *Andromeda*, and it is remarkable that all the other species are low shrubs. The sorrel tree itself, however, degenerates into a shrub, in soils uncongenial to its constitution. It is remarked by Michaux, in his magnificent work on the Forest Trees, that it becomes stunted in dry and gravelly lands, particularly in the neighbourhood of Knoxville, where it is most abundant, and where he says it presents itself in the form of a bush. According to Mr. Elliot, it rarely attains a greater stature than fifteen or twenty feet, except in the vallies of the mountains. The acidity of the leaves has given rise to the name of Sorrel Tree, by which it is universally recognized where it grows. They are said to be chewed by the hunters in the mountains when they cannot procure water, and are reported to be very refreshing; and Pursh says, they find that they allay thirst. Their leaves are said by Michaux to become black in drying. But this, though frequently the case, is not invariably so, many specimens retaining a good green colour when carefully exsiccated. He informs us, that "where sumac is not to be obtained, they are used to impart a black colour to wool."

* Sketch of the Botany of South Carolina and Georgia.

Sorrel Tree, though it attains a considerable diameter, has a soft, reddish kind of wood, of no value in the arts, nor is it, from the difficulty with which it burns, of any account for fuel. As an ornamental tree, however, it is certainly worthy of attention, and will grow very far to the north of its natural situations, and flowers at the height of five or six feet. It is cultivated in Bartram's gardens, on the Schuylkill, and in those of Messrs. Landreth. From specimens obtained in these places the drawing has been made.

The plate resembles a flowering twig, of its natural size.



Drawn from Nature by W.P.C. Barton.

Engraved by C. Tiebout.

LINDERNIA PYXIDARIA, Forst.

TABLE XXXI.

LINDERNIA DILATATA.

DILATED-LEAVED LINDERNIA.

Diandria Monogynia, Linn.

Scrophulariae, Juss.

GENERIC CHARACTER.

Calix 5-parted, nearly equal. *Corolla* tubulose, bilabiate ; upper lip short, emarginate ; lower trifid, unequal. *Filaments* four, the two longer forked, and sterile. *Stigma* bilamellate. *Capsule* 2-celled, 2-valved ; seminiferous dissepiment parallel with the valves.

SPECIFIC CHARACTER.

Plant very smooth. Leaves ovate, or oblong-ovate, obtuse or often sub-acute, dilated at the base, amplexicaule, rarely obscurely toothed ; peduncles axillary, one-flowered, much longer than the leaves. Corolla thrice the length of the calix. Capsule shorter than the calix. B.

SYNONYMS.

LINDERNIA dilatata, Muhl. Cat. and Elliot.

LINDERNIA pyxidaria, Pursh, 2. p. 419.

GRATIOLA inæqualis, Walt. p. 61.?

G. anagallidea, Mich. Fl. Boreali-Am.?

WHOLE plant very smooth, from six to twelve inches high. Root fibrous, annual. Stem branching, jointed, procumbent part of its length, then assurgent, quadrangular, purplish towards the ground, and sending off radicles from the joints. Leaves opposite, ovate, dilated towards the base, and embracing the stem. They are of various sizes, but the largest rarely exceed the size of finger nails; sometimes, however, they are three-fourths of an inch long, and half an inch broad in shady places; in such specimens they are semi-membranaceous. They are of a dull grass-green, with occasional spots of dull purple in the direction of the three or five nerves on the under side, which are often obscure, except when the plant is held to the light. Margin mostly entire, though a few teeth are often found on the leaves of some specimens. Flowers numerous, axillary, commencing from the lowest part of the stem, situated on delicate, often filiform, quadrangular, erect peduncles, about three-fourths of an inch or one inch in length, which have a tendency to become deflexed as the flower advances towards seed. Indeed the fruiting specimens are generally deflexed as in *Spergula*. Calicine segments somewhat unequal, subulate, slightly pubescent, but often wholly glabrous. Corolla pale purple or nearly white, twice or thrice the length of the calix; tube attenuated towards the base, divided at the limb into four segments, the uppermost being broader than the other three; the latter are lower, obtuse, and form the inferior lip. Filaments four, inserted into the tube of the corolla: the two longest ones nearly equal to it in

length, abortive and garnished with a fork near the head. The two shorter, fertile and filiform. Anthers two-lobed, pale straw-yellow. Germ superior, ovate; style persistent. Stigma bilabiate and flattened. Seeds small, very numerous, pale-brown or ochre-yellow. Grows along the margins of rivers, creeks and ditches, in loose gravelly or sandy soil, from the New England states to Georgia, flowering from May to September. The variety β . described by Pursh, appears to be the very distinct and well-marked species called *attenuata* by Muhlenberg.

The genus *Lindernia* was named by Allioni in honour of Francis Balthazar Von Lindern, a physician and botanist of Strasburg, who flourished in the early part of the last century. The present species seems specifically distinct from the European *Lindernia pyxidaria*, described by Willdenow. This opinion is not founded on Pursh's remark to the same effect, induced by his wrong impression of Willdenow's description of the length of the peduncles. In the *Species Plantarum*, that author describes the peduncles as being often longer than the leaves, on the top of the stem, "pedunculi foliis breviores sed in apice caulis sæpius longiores." I have in my herbarium a small specimen from France, of *Lindernia pyxidaria*, an inch and a half high, which was sent to me by Professor Horneman of Copenhagen. Comparing our plant with this specimen, relatively to its specific character, there appears this discrepancy:—in the European plant the leaves are not dilated towards the base; are simply sessile,

and obscurely denticulate; and the peduncles are shorter than the leaves. This specimen more nearly resembles *L. attenuata* than the present plant.

The drawing from which the engraving has been made, was designed from specimens obtained from the western shores of the Delaware, near this city, in which places it appears to be frequent, though not easily found, owing to its growing amidst the roots of various larger plants.

Fig. 1. Represents *Lindernia attenuata*, (Pyxidaria, Pursh,) of its natural size, in flower.

2. A flower and peduncle, separated.

3. The under view of the tube of the corolla, showing the nether lip.

(Figs. 2 and 3 a very little enlarged.)



Drawn from Nature by W.P.C. Barton

Engraved by C. Tiebout

TYTILARIA PERFOLIATA.

TABLE XXXII.

UVULARIA PERFOLIATA.

PALE PERFOLIATED UVULARIA.

Hexandria Monogynia, Linn.

Lilia, Juss.

GENERIC CHARACTER.

Corolla inferior, 6-petalled, campanulate; claws of the petals each furnished with a nectariferous cavity. *Filaments* very short, growing to the anthers. *Stigmata* reflexed. *Capsule* 3-angled, 3-celled, 3-valved; valves septiferous in the middle. Seeds many, sub-globose, arillated at the hilum.

SPECIFIC CHARACTER.

Leaves perfoliate, ovate-acute, or ovate-lanceolate, acute; corolla pulverulently rough within; anthers cuspidated with a cartilaginous point; capsule truncate-triangular. B.

SYNONYMS.

UVULARIA perfoliata, Muhl. Cat. and Herbarium.

UVULARIA perfoliata, *z.* Bot. Mag.

UVULARIA flava, Pursh, (according to the figure he refers to.)

U. perfoliata, of Elliot.

ROOT white, palmate, divisions cylindrical, garnished with a few yellowish-white radicles. Stem erect, flexuose, sheathed below with lavender purple sheaths. Leaves yellow-green above, glaucous underneath, petiolated, ovate, acute, three-nerved, striated, the lowest one narrower than the others, and often cordate at base; and that one at the point of bifurcation of the stem, broader than the rest. Flower solitary, of six, lanceolate, sulphur-yellow, acute petals, pulverulently spotted with orange-yellow internally. Nectariferous furrow, a long narrow line. Pistil terminated by a trifurcate stigma. Stamens half as long as the petals, convolute. Anthers long, about the length of the filaments, bursting longitudinally at the inside of each cell, yellow, each tipped with a cartilaginous, awl-shaped, green point; filament broad, one-eighth of an inch long. Capsule truncate, trigonous. Seeds numerous. Grows in shady, damp woods, along the margins of rills and other moist ground, from Canada to Georgia, preferring loose soil. Flowers in early May.

The genus *Uvularia* was established and named by Linnæus, but the precise derivation of the term cannot now be ascertained. As *Uvularia* is an old synonym for *Ruscus hypoglossum*, on account of the diminutive leaves not unlike the uvula of the human throat, lying over the inflorescence of that plant, Dr. Smith conjectures that the generic term was thence derived.

The North American species are four or five in number. There is some confusion relative to the present plant and the flava of

Smith, which appears to be an ideal species, or at most, a mere variety of the present. Pursh quotes the figure No. 955, Bot. Mag. for his *flava*, and that figure undoubtedly refers to the present species. It certainly does not agree with his own description quoted from Smith, in which the leaves are said to be obtuse, while in fact the figure properly represents them as quite acute. What plant Pursh had in view in his description of *U. perfoliata*, it is difficult to decide. It seems probable that *U. perfoliata* and *flava* of Smith refer to one plant, that which is here figured. Mr. Elliot quotes Pursh for the *U. flava*, and as he has evidently not seen it himself, is unaware that it is his own *perfoliata*, which he describes as having leaves "rather acute."

Fig. 1. The plant in flower, of its natural size, severed from Fig. 2.

2. The lower part of the stem and root.

3. A petal.

4. Germ, style, and stigma.

5. A stamen.

TABLE XXXIII.

ERYTHRONIUM AMERICANUM.

AMERICAN ERYTHRONIUM. DOG'S-TOOTH VIOLET.

Hexandria Monogynia, Linn.

Lilia, Juss.

GENERIC CHARACTER.

Corolla sub-campanulate, petals 6, reflexed, the three interior usually furnished with a callous notch on each side near the base, and a nectariferous pore. *Capsule* superior, roundish, or elliptical, sub-stipitate. *Seeds* ovate.

SPECIFIC CHARACTER.

Leaves lanceolate, involute at the point; petals lanceolate, acute, the inner three furnished with a callous denture on each margin near the base; germen sub-globose. Style clavate, 3-angled. B.

SYNONYMS.

ERYTHRONIUM Americanum, Ker, in Bot. Mag. t. 1113.

E. lanceolatum, Pursh.

E. longifolium, Poiret.

E. flavum, Smith, Rees. Cyclo.

E. dens canis, M.



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ERYTHRONIUM AMERICANUM.

Root pyriform-bulbous, invested with loose, brownish tunics, shrivelled longitudinally, sheathing a bifoliate stem, and buried from six to nine inches beneath the surface of the ground; subterraneous portion of the stem white, shining, cylindrical and delicate, sometimes slightly angular. Stem above ground, sheathing petioles, and a portion of the base of each leaf, dull-purplish. Leaves destitute of veins, unequal, one always narrower than the other, lanceolate, and oval-lanceolate, channelled, slightly undulate, and terminating in a thick acumination, made by a sudden converging of the margins. Young plants of the first year have but one leaf, which is often quite elliptical, (as fig. 3.) next year the plant sends up two leaves and a flower. Leaves always shining and glabrous, and maculated by large, irregular spots of reddish-brown or umber-brown, which give them the appearance of a dingy green. Under side of the leaves paler and without spots. Peduncle radical, one-flowered, proceeding from the point of meeting of the two leaves, about five or six inches long, cylindrical, glabrous and shining. greenish below, and yellowish towards the summit. Flower consists of six lanceolate, reflected petals; the three outside yellow, acuminate, striped and veined with dull brownish-red; the three inner yellow, without stripes, having a cartilaginous notch on each side near the base, and a longitudinal furrow running into the small nectariferous pouch at base. The inner side of all the petals spotted with long dots of reddish purple, and each has a stamen better than half its length attached to its base. Filaments broad, com-

pressed; anthers compressed, flat. Germ pyriform-triangular. Stigma clavate or prismatic, entire, internally pubescent, yellowish-green, tapering downwards towards the germ. Style fistulous. Flowers in April and early in May. Inhabits the shaded banks of rivulets, and small water-courses, from Canada to Georgia.

The genus *Erythronium* is derived from *ερυθρος*, red, in allusion, it is conjectured, either to the colour of the flowers, or the more unusual "blood stain" marks on the leaves. There appears to be at most two North American species, the present one being the most common. The root is farinaceous, and probably esculent after boiling, like that of *Erythronium dens canis*, which affords food to the Tartars.

Fig. 1. Represents the plant, of its natural size, cut from Fig. 2.

2. The root and subterraneous portion of the stem.
3. An outline of such leaves as generally appertain to the first year's plant. Occasionally flowering specimens are found with two leaves like this.
4. Germ and stigma.
5. Stamen.
6. An inner petal.



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Engraved by C. Tichout

No 1. OBELIA KALMII β Gracilis

No 2. HOUSTONIA CORYMBOSA.

TABLE XXXIV.—NO. 1.

HOUSTONIA CÆRULEA.

FAIRY-FLAX. BLUETT. INNOCENCE. VENUS' PRIDE. SKY-BLUE
HOUSTONIA.

Tetrandria Monogynia, Linn.

Rubiaceæ, Juss.

GENERIC CHARACTER.

Calix 4-toothed. *Corolla* of 1 petal, funnel-form, 4-cleft. *Capsule* 2-celled, many-seeded, half-superior, opening transversely.

SPECIFIC CHARACTER.

Stem erect, dichotomous, sometimes setaceous, convolute; radical leaves pubescent, spathulated—cauline opposite, oblanceolate, or linear, obtuse peduncles one-flowered, long; corolla segments oval, terminating in a sudden, acute point. B.

SYNONYMS.

HOUSTONIA Linnæi, Mich.

POIRETIA erecta, Gmelin, Syst. 263.

ROOT perennial, sending up numerous, slender, twisted, obscurely square green stems, about four or six inches high, forked above. Radical leaves numerous, spathulated, ciliated, and slightly pubescent; those of the stem opposite, fewer, ovate, ending in a broad petiole, and becoming narrower as they approach the top of the stem, until they are sometimes linear-obtuse, and glabrous. Calix obtusely quadrangular, four-toothed, an eighth of an inch long, acute. Germ purplish. Flower-buds yellow, and nodding before the flower expands. Tube of the corolla externally pale, and internally dark-yellow. Segments of the limb four, ovate, terminating in an abrupt point, curved backwards, flax-flower-blue, sometimes white, with the centre white, variegated on each segment by two spots of bright yellow. Stamens included, pistil just perceptible above the throat of the corolla, sometimes white. Grows in grassy places on way sides, the grassy borders of fields, edges of woods, from the northernmost to the most southern extremity of the Union. Flowering from April till September. It prefers rich soils, and in such is more robust than in sandy and shady places, where it becomes tall and more slender, with smaller leaves and flowers.

The genus to which this pretty little plant belongs, was named by Gronovius and Linnæus after Dr. William Houston, who died in 1733. He was a botanist of eminence who resided many years in the West Indies, and visited South America between the years 1728 and 1732. He rendered essential services to the science he culti-

vated, by the interesting observations he made on Jalap and other medicinal plants, as well as by transmitting seeds to Europe.

Wherever this plant occurs, it is abundant. It is admired for its beauty alone, being quite devoid of fragrance, and has taken its specific name from the colour of the flowers, which is generally cerulean-blue, though occasionally they are quite white; they are very numerous. Cultivation improves the vigour of the plant, and perhaps heightens the brilliance of hue in the flowers; and it is said that in England, where it has been introduced at Kew since 1785, it is quite hardy, and with the slightest degree of attention is made to flower perpetually during Spring, Summer, and Autumn. It is easily increased by parting its roots; hence it might be a fit subject for introduction to our gardens, particularly on account of the early period of its flowering. It is also a native of the western coast of North America.

The figure represents the plant of its most common size.

TABLE XXXIV.—NO. 2.

LOBELIA KALMII,

β. GRACILIS.

KALM'S LOBELIA. (The slender variety.)

Monadelphia Pentandria, Linn.

Lobeliaceæ.

GENERIC CHARACTER.

Calix 5-cleft. *Corolla* monopetalous, irregular, on the upper side cleft nearly to its base. *Stamina* united into a tube. *Stigma* 2-lobed; involucrate, involucre bearded. *Capsule* inferior or semi-superior, 2 or 3-celled; opening at the summit. *Seeds* minute, scabrous.

SPECIFIC CHARACTER.

Slender, erect, often simple, but frequently branched; radical leaves spatulate, stem leaves linear, very slightly denticulate; flowers racemous, alternate, remote, pedicellated; pedicels longer than the flowers. B.

Variety β. Stem scabrous, pedicels shorter than the flowers. B.

SYNONYMS.

LOBELIA Kalmii, Muhlenbergian Herbarium, Muhl. Cat. and Willd.

LOBELIA gracilis, Nuttall, Gen. Am. Pl.

Root small, fibrous, perennial. Stem slender, slightly scabrous, flexuous, and somewhat secund; generally simple, but sometimes branched. Radical leaves as in the type of the variety: spatulate coloured with a slight tinge of dull purple. Stem leaves distant, few, sessile, oblong-linear, about an inch or an inch and a quarter in length, with a few obscure teeth about the middle. Flowers small, pale campanula-purple, situated on peduncles of deep indigo-blue, about a quarter of an inch long, having two minute, and to the naked eye, almost imperceptible glandular-like bracts, or scales, at the base. Grows on the margins of damp woods, on the edges of sandy swamps from New Jersey to Carolina.

The genus *Lobelia*, (of which the *Scævola* of Linnæus was the original type,) was dedicated by father Plumier to Mathias de Lobel, or de L'Obel. Among the species peculiar to North America, the present one, of which we here present a variety, is the most variable. I have specimens of the *L. Kalmii* sent me by Dr. John Torrey, of New York, which differ considerably from each other, and still more from the present plant. They are certainly, however, in my opinion, not specifically distinct from the plant here figured, which is a delicate variety; but was considered by Muhlenberg to be the same. On consulting the Herbarium of that botanist, I have found many specimens of the present plant, like the one figured: others slightly deviating from its striking characters, and approaching to the *Kalmii*; and of the *Kalmii* itself there are several specimens

differing very much from each other. The greater length of the peduncles and larger size of the flowers, seem to be the most conspicuous circumstances in which a difference is observable from the variety β . The relative situation of the scale-like bracts, (which rather appear to be glands,) so accurately pointed out and described by Mr. Nuttall, does seem to be tolerably constant; yet a close examination of many specimens has shown, that it is by no means an invariable distinction. I am therefore confirmed in the opinion expressed several years ago in the *Compendium Floræ Philadelphicæ*, that the present plant is a mere variety of the *L. Kalmii*.

No. 2. fig. 1. Represents the lower portion of the plant, severed at the mark + from the upper portion, of the prevailing size.

Fig. 2. Stamens and pistil.

3. Corolla, opened artificially, the natural size.



N° 1

N° 2

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Engraved by C. Lechout

N° 1 HYPOXIS BREVIPILA

N° 2 NEOTTIA PERBELLA

TABLE XXXV.—NO. 1.

HYPOXIS ERECTA.

YELLOW BETHLEHEM STAR.

Hexandria Monogynia, Linn.

Narcissi, Juss.

GENERIC CHARACTER.

Spatha 2-valved. *Corolla* superior, 6-parted, persistent. *Capsule* elongated, narrower at the base, 3-celled, many-seeded. *Seeds* roundish, naked.

SPECIFIC CHARACTER.

Hairy; scape generally four-flowered, shorter than the leaves, which are very long, linear, and acuminate; peduncles twice as long as the flowers. B.

SYNONYMS.

HYPOXIS *Carolinensis*, Mich.

HYPOXIS *graminea*, Pursh.

PLANT varying in height from two inches to a foot. Root an oblong or barrel-shaped bulb, marked by circular lines or rugæ, about three-fourths of an inch long, invested at the bottom and upper part with a sphacelated, brownish-black tunic. Fibres very numerous and thick, cylindrical and marked also by numerous circular rings. None of the fibres come out from the under end or bottom, nor often from any part near the bottom, but principally from the different sides irregularly. From the apex of the bulb proceeds,

first a black and then a white sheath, or two, embracing about five, long, grass-like, hairy leaves, deeply channelled, and of very unequal lengths, from five to eleven or twelve inches long, the tips generally sphacelated. Scapes two, three, and four, about six inches long, bearing two, three, and four flowers on peduncles of unequal lengths, from one-half to three-fourths and one inch long. Both scape and peduncles pubescent, with whitish hairs. The calicine petals lanceolate, ovate, sub-acute, hairy, greenish-yellow exteriorly, bright-yellow within. Grows in damp places, meadows, grassy borders of woods, and similar situations, from Canada to Georgia, flowering in May.

The generic term *Hypoxis* is derived from $\tilde{\nu}\pi\omicron$, *underneath*, and $\sigma\acute{\xi}\nu\varsigma$, *sharp*, in allusion, as may be supposed from the generic description, to the tapering and pointed base of the capsule. The present is much the most common species in the United States, but from its disposition to vary has often been supposed to consist of more than one species. The petals are often more pointed than represented in the plate, particularly in flowers which have appeared late in the summer. The leaves also, which are generally of the length of those of the figure, are not unfrequently one, two or three inches long, and sometimes exceed even a foot in length.

The figure, (No. 1.) is of the prevailing size of the plant, in its natural situation.

TABLE XXXV.—NO. 2.

NEOTTIA TORTILIS.

SPIRAL NEOTTIA. LADIES TRACES.

Gynandria Monogynia, Linn.

Orchidæ, Juss.

GENERIC CHARACTER.

Corolla ringent; the two lower petals placed under the lip, which is beardless; interior leaves connivent. *Column* apterous. *Pollen* farinaceous.

SPECIFIC CHARACTER.

Radical leaves linear-lanceolate, attenuated at base; scape sheathing; flowers spirally secund; lip trifid, the middle crenulate. *Willd.*

SYNONYMS.

SATYRIUM spirale, Swartz. Prod.

OPHRYS æstivalis, Mich.

LIMODORUM præcox, Walt.

ORCHIS spiralis, Linn.

PLANT from twelve inches to two feet high. Root consisting of three or four irregular carnose, palmate segments, of a yellowish-

white colour, garnished with a few radicles. Stem very perpendicular, slender, sheathed at the base. Radical leaves about four or six inches long, and something more than a quarter of an inch broad, glabrous and acute: costa prominent. They often, in specimens growing among the deep blades of grass, wither and drop off before the flowers expand, so as to give the plant the appearance of being leafless. Stem-leaves mere sheath-like scales. Flowers white, about eighteen in number, spirally twisted and leaning one way, garnished with an ovate, acuminate, green bract, having white membranaceous edges. Grows in low meadows and boggy grounds, often among high grass, from the northern to the most southern states. Flowers in June and July. It varies much in size, frequently being in bloom when only eight or ten inches high, and often attaining a height of more than two feet, with a very robust habit. Specimens in my herbarium, received from New Orleans, are much larger than the northern plant.

Neottia properly belongs to the *Ophrys nidus avis* of Linnæus, or bird's nest ophrys, and which originated with Dodonæus, νεοττία, signifying a bird's nest. Linnæus, retained this plant with the coral-orchid as a genus in Act. Upsal. an. 174-32, under the name in question—but that genus was afterwards sunk in *Ophrys*. Haller restored it under another appellation which is now established, (*Epipactis*.) *Neottia* therefore being uncorrupted, was chosen by Jacquin and Swartz, for their very distinct genus, some species of which had been in *Satyrium* and some in *Ophrys*.

The present species of this genus as it now stands, is one of the commonest throughout the Union, and attracts attention by the singularity of its spiral spike of white flowers.

The figure, (No. 2.) represents the plant of its common size, cut apart at the mark +.

TABLE XXXVI.

AQUILEGIA CANADENSIS.

AMERICAN COLUMBINE.

Polyandria Di-pentagynia, Linn.

Ranunculaceæ, Juss.

GENERIC CHARACTER.

Calix round. *Petals* 5. *Lepanthia* 5, corniculate, situated between the petals. *Capsules* 5, distinct.

SPECIFIC CHARACTER.

Nectaries erect, stamens exserted. Willd.

PLANT from fourteen to eighteen inches high. Root perennial, fibrous. Stems numerous, dichotomous, greenish below, purple towards the peduncles; often very slender in the crevices of rocks, but in favourable situations as thick as represented in the figure. Radical or lower leaves biternate, and divided irregularly; the extreme lobes or segments obtuse, the upper leaves simply ternate, toothed, and sometimes entire. Corollas greenish-yellow, with occasionally a little dull-red down the central line. Nectaries long,



Drawn from Nature by W.P. Bartram

Engraved by G. Hill

AQUILEGIA CANADENSIS



horn-shaped, dilated below into an obtuse point ; carmine-red, tipped with shining green and gamboge-yellow at the open or descending end. Stamens numerous, filiform, straw-yellow. Anthers orange-yellow. Pistils greenish-yellow. Peduncles reddish-purple. Grows on rocks, from Canada to Georgia. Flowering very early in April, and continuing in bloom till about the 20th of May.

This very elegant, well-known, and favourite flower, is the only North American species of a genus, (called also *Aquilina*, from *Aquila*, an eagle,) which derives its name from a fancied resemblance in the nectaries to an eagle's claws. The common English name *Columbine*, by which it is every where known, has had its origin in a supposed resemblance of the nectaries to the claws of a pigeon, (*Columba*.) However remote these resemblances may appear now, they have been considered sufficiently striking to the minds of those who classed our plants by genera, and who, it will readily be conceived, often found considerable difficulty in adapting appellations at once proper and expressive.

Few plants in North America, are more extensively known and admired than the Wild or American *Columbine*. The richness of the different colours, which constitute the flowers, the peculiar formation of the nectaries, and the entire grace of the whole plant, to which the drooping situation of the flowers greatly contributes, all combine to render it equally curious and admirable. It is the

liveliest ornament of the rocks of our country, in early spring, frequently blooming in great perfection, with flowers quite as large as those of the figure, in crevices where it would seem impossible for a blade of grass to receive sufficient sustenance to support life. In such situations, secured from the sun, the stems and peduncles are exceedingly delicate and tender, which causes them to droop into a full arch by the weight of the flowers. In more sunny situations, where they can command earth and water, the stems become larger and more succulent; and in gardens under cultivation, are apt to lose their reddish-purple colour. The plant is now frequently introduced into the borders of the cultivated grounds in the neighbourhood of the natural situations in which it grows—and assuredly no plant in our country is more deserving of attention and cultivation than this, both on account of its elegance and singularity, and its capability of enduring our winters; added to this, its early period of flowering, makes it highly ornamental, at a period when few other showy plants are in bloom.

The figure represents the plant of its natural size, culled from an exposed rock.

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OF

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The synonyms are in italics.

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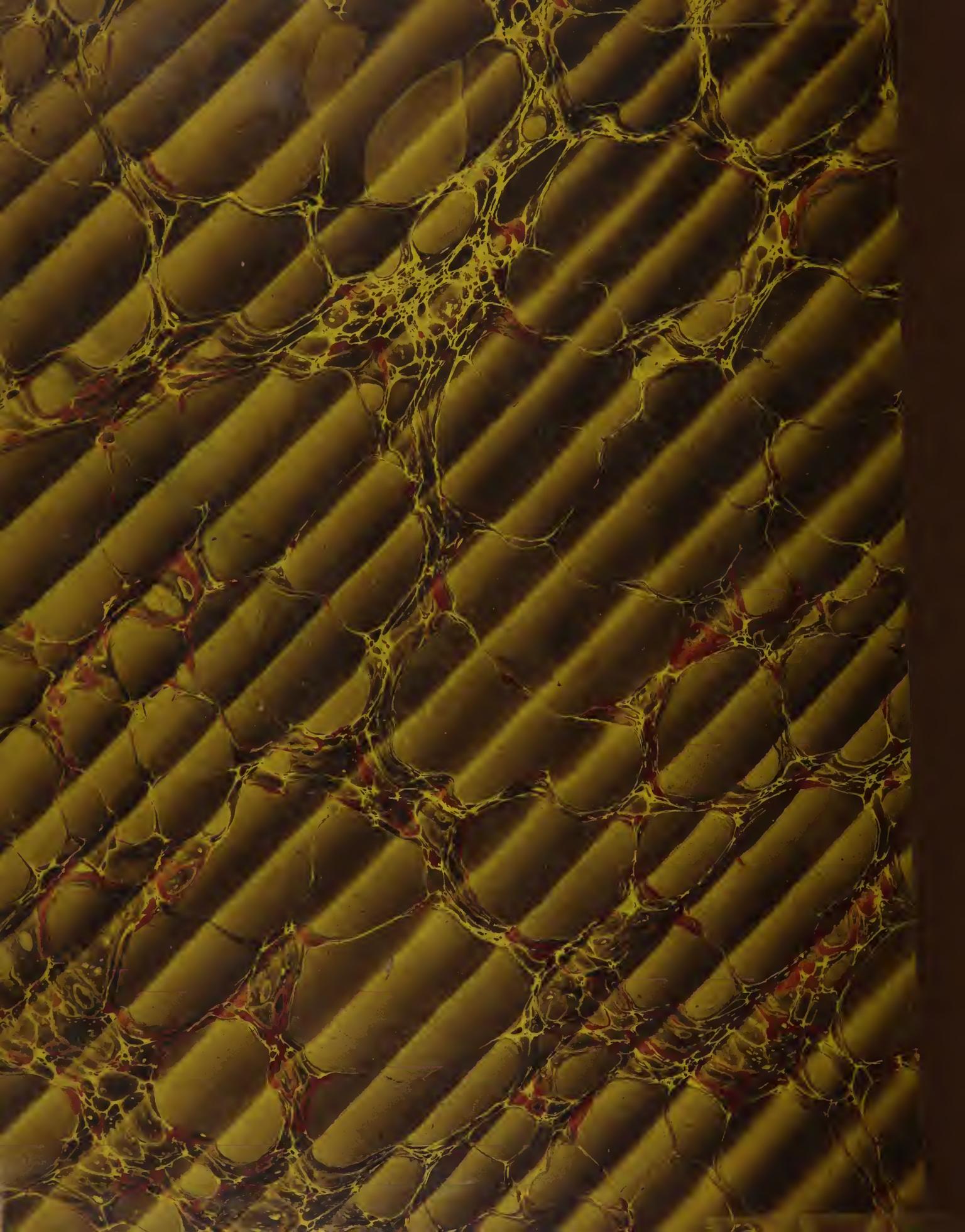
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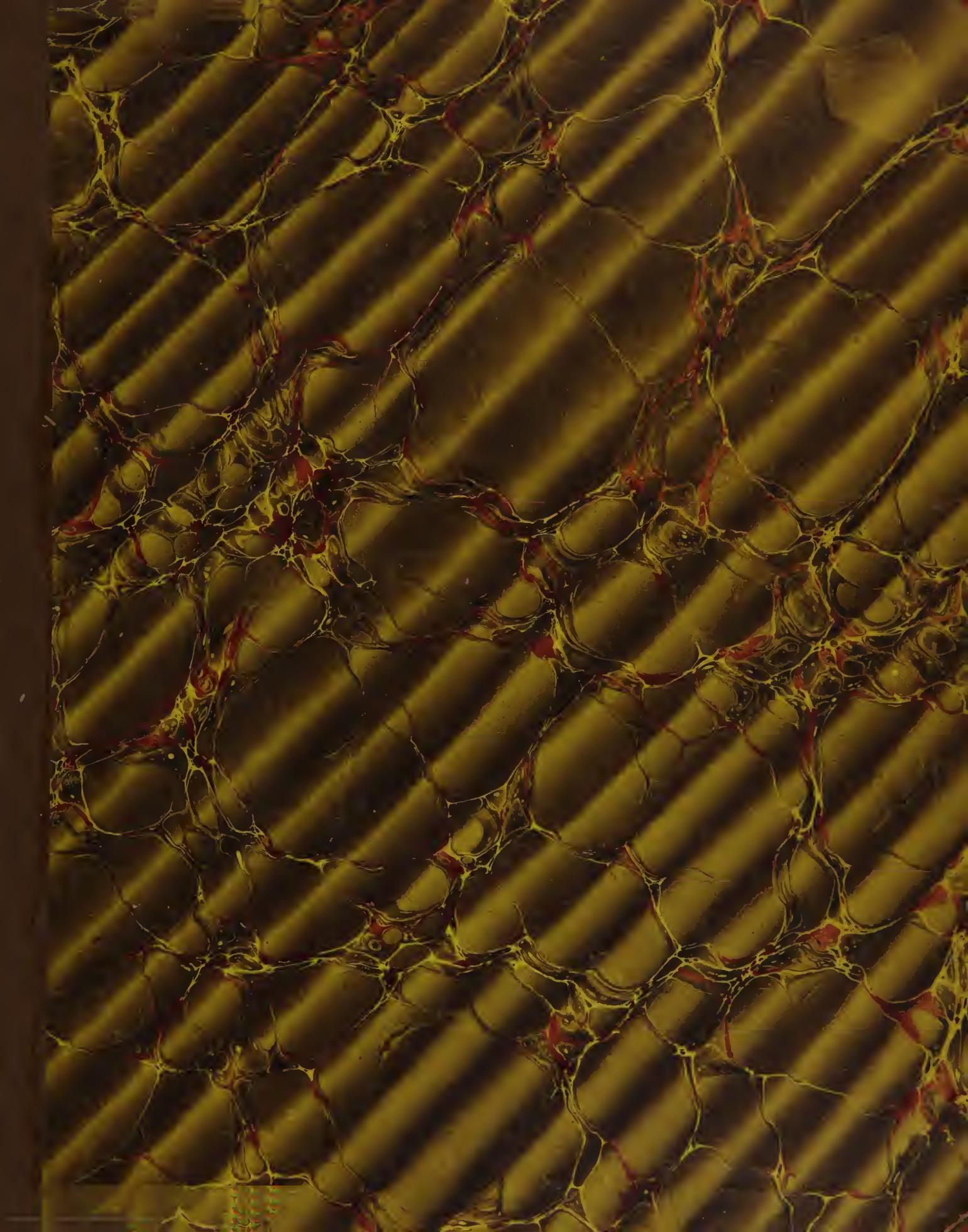
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